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Stakeholder Perceptions of Sustainable Value and Water Conservation: A Case Study of Social, Environmental, and Economic Concerns in the Rookery Bay Estuary

Bruce Victor Lilyea
Nova Southeastern University, bruce.lilyea@gmail.com

Stakeholder Perceptions of Sustainable Value and Water Conservation: A Case Study of Social, Environmental, and Economic Concerns in the Rookery Bay Estuary

by

Bruce Victor Lilyea

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Approved:

12/5/2014
Date of Defense

Robin Cooper
Robin Cooper, Ph.D.
Chair

Judith McKay
Judith McKay, Ph.D.

Robert J. Witheridge, Ph.D.
Robert Witheridge, Ph.D.

1/5/2015
Date of Final Approval

Robin Cooper
Robin Cooper, Ph.D.
Chair

Dedication

This dissertation is dedicated to my father, Carl Victor Lilyea (1929-2005), who significantly impacted individual marginalized people and large-scale social movements; seamlessly combined civic, business, and social efforts; blended conservative perspectives and environmental passion; and effectively modeled for me how to optimize shared value long before I even knew the meaning of the words. Secondly, I dedicate this material to you – the reader – and your efforts toward sustainable and thrive-able shared value.

Acknowledgments

I would like to thank NSU SHSS Dean Yang, the Department of Conflict Analysis and Resolution faculty, and my professors in the NSU Huizenga School of Business and Entrepreneurship's MBA program as well as many of my peers throughout both of these programs for their significant contributions to my academic success. Specifically, I would like to thank my dissertation chair, Dr. Robin Cooper, and my committee members, Dr. Judith McKay and Dr. Robert Witheridge. Dr. Cooper's mentorship has been significant in my formation as a researcher. Additionally, I extend my gratitude to all of the research participants from my study.

I would also like to acknowledge the National Oceanic and Atmospheric Administration (NOAA) and the Florida Department of Environmental Protection (FDEP), Dr. Robin Cooper, Jorge Rice, and Tabitha Stadler for their contributions to this research. I had the privilege of participating in a concomitant research project based in the Rookery Bay area that was funded by NOAA and FDEP entitled the Restore the Rookery Bay Estuary (RRBE) project, which included a social science study. In addition to Dr. Cooper's direction as my dissertation chairperson, she was also the Principle Investigator for the social science study funded by these agencies. Jorge conducted the interviews with the water management decision makers and was actively involved in the coding and categorizing process. Tabitha coordinated the efforts of the RRBE project, working with parties from NOAA, FDEP, NSU, and the Rookery Bay National Estuarine Research Reserve (RBNERR). Although the research questions differ between the two studies, and the words (and errors) in this presentation are mine, the efforts of Dr. Cooper

and Jorge are embedded into the foundational data that were shared between the two studies, and I am proud to have been on their team.

I am indebted to many friends and family that have encouraged me and believed in me along the way and to the many people that have paved the way for me. This dissertation would not be possible without the encouragement and support of my best friend and wife, Ann Michelle Lilyea, and my desire to offer a better future and point the way for my two amazing daughters – thank you!

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Abstract

Stakeholders' perceptions of social, environmental, and economic concerns in the Rookery Bay Estuary were examined through this research. The purpose of this study was to discover the shared value and common resolution responses for the people of the Rookery Bay area that can extend to other local environmental management scenarios. Using Stakeholder Theory, Rational Choice Theory, Symbolic Interactionism, and Systems Theory as theoretical foundation, the following research questions were considered: RQ1) What are the points of shared value of community stakeholders facing environmental management issues? RQ2) How do the perspectives of the community stakeholders toward the social, environmental, and economic issues relate to their local environmental decision-making? RQ3) What are the attitudes and behaviors toward water? Participants identified the importance of water and the natural environment on the community. Additionally, participants were aware of the social, economic, and environmental issues and noted tension between stakeholders; however, they have a limited understanding of the concept of shared value. This research illustrates the benefit of weaving concepts from various fields together to strengthen the conflict studies field. The findings and recommendations in this research offer an outline that provides a path from dispute to common value generation that leads through creating shared meanings, a shared understanding, a shared story, to shared value that is stable over time.

Figure 1. Rookery Bay (view from along Shell Island Trail), Source: Bruce Lilyea, 2014

Chapter 1: Introduction to the Study

As he heads out on a fishing trip in the Gulf of Mexico with his new boat, an agricultural farmer from Hendry County is frustrated with the no-wake-zone laws and the abundance of aquatic vegetation. As she washes her family's SUV just uphill from the storm water runoff drain, a businesswoman complains to herself about having to drive an hour to get to an environmental reserve to experience nature in its pristine form. Attempting to be environmentally friendly, a nine-year-old girl is confused about using water to rinse out a recyclable container. Ordering dinner from a restaurant's menu after returning from a disappointing diving excursion to near-shore reefs, a construction worker is amazed at the increase of the price of oysters. Although these stories are fictitious, they represent the interaction between social, environmental, and economic tensions that exist in the interaction between stakeholders and their environment.

Background

Estuary challenges are often man-made, cumulative, and interconnected. Within this dynamic, community attitudes are disparate and need to be understood before conflict intervention is applied (Kelly, 2012; Rockloff & Lockie, 2004; Sime, 2005). The requisite questions include:

1. What is the history of the situation?
2. Who is involved?
3. What do they want?

Often the policy makers, legislatures, and organizational decision makers consider their perspective of the community's attitudes by assembling a series of one-dimensional

viewpoints into a coherent whole. However, attitudes may not fit cleanly into pre-determined "boxes" and behaviors may seem to be contradictory (Hoehn & Thapa, 2009). The people and their stories are part of a community and that community is part of a much bigger system that includes the natural environment and everything, big and small, that happens there.

The traditional perspective offers a straightforward and reasonably efficient approach to data aggregation that provides generic information for decisions and building strategies. Unfortunately, much depth and richness of the tension within and among stakeholders is overlooked. The internal and individual views on the tensions between social, environmental, and economic issues are essential to understand at an individual stakeholder level within the context of the overarching system in order to move beyond data aggregation to shared understanding. Viewing this tension within the lens of a local conflict is essential to add depth and reality to any technique or framework.

Rookery Bay Estuary

Located on the coast of southwest Florida in Collier County on the southern side of Naples, the Rookery Bay Estuary is one of the few remaining pristine estuaries in Florida. In addition to its natural beauty and unique environmental elements, this complex and fragile ecosystem offers a wide range of services from large-scale water filtration to providing an aquatic nursery and is a key refuge for nesting and migrating birds. The area's natural beauty and water-based features generate a significant draw for the area that has marked the greater Naples area as a destination spot for both tourists and residents.

A key source of the inland water features of south Florida stem from Lake Okeechobee (see Figure 2). Beginning at Moore Haven on the west side of the lake, the Caloosahatchee River flows from Lake Okeechobee to the Gulf of Mexico at Fort Myers. The bends and oxbows have been removed since the Caloosa Indians paddled the river, but, with all of the man-made changes, the waterway still exists. Another primary regional water feature in south Florida is the Everglades. Although the massive sheet flow of water no longer percolates through the Everglades, the water finds its way south from Lake Okeechobee through a series of canals and levies that traverse the southern part of Florida.

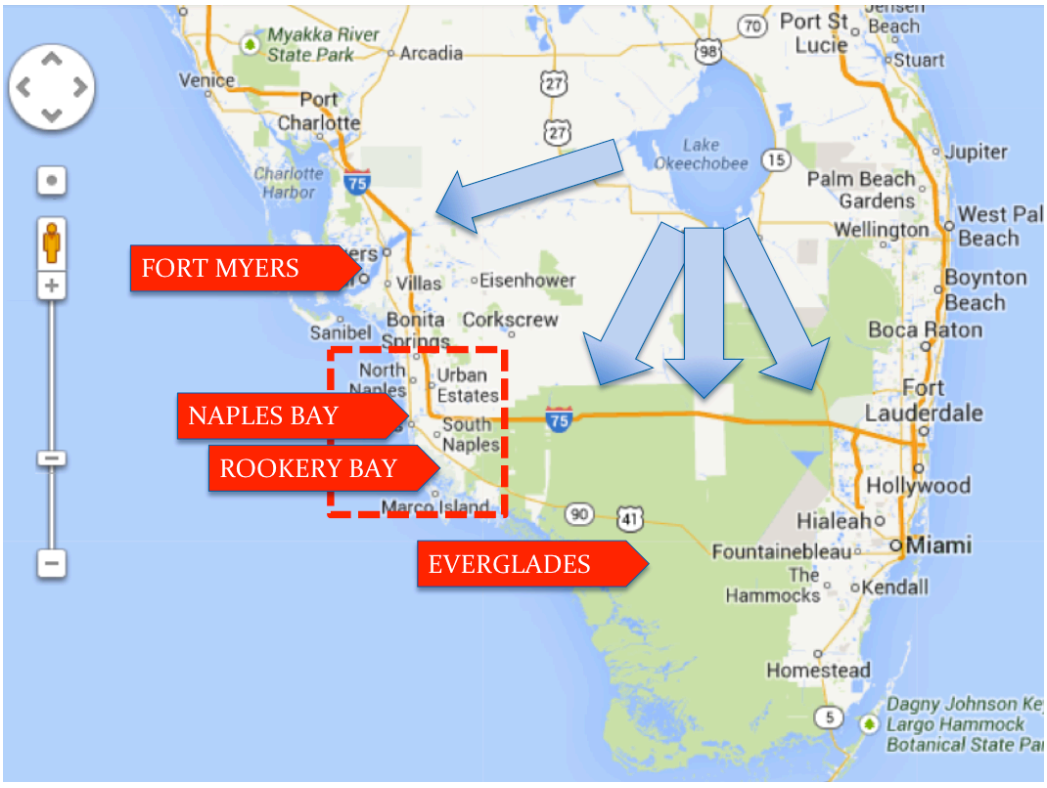

Figure 2. Map of South Florida (Google, 2014a)

In between these two significant water features of south Florida is a triangular space (see dotted box in Figure 2) that includes Naples Bay, fed by the Golden Gate-Naples Bay watershed, and Rookery Bay, fed by the Henderson Creek Watershed. The water that enters the Naples Bay primarily comes from the Golden Gate Canal, flows under I-75 and then down the Gordon River and under another US Highway 41 (See Figures 3, 12, and 13).

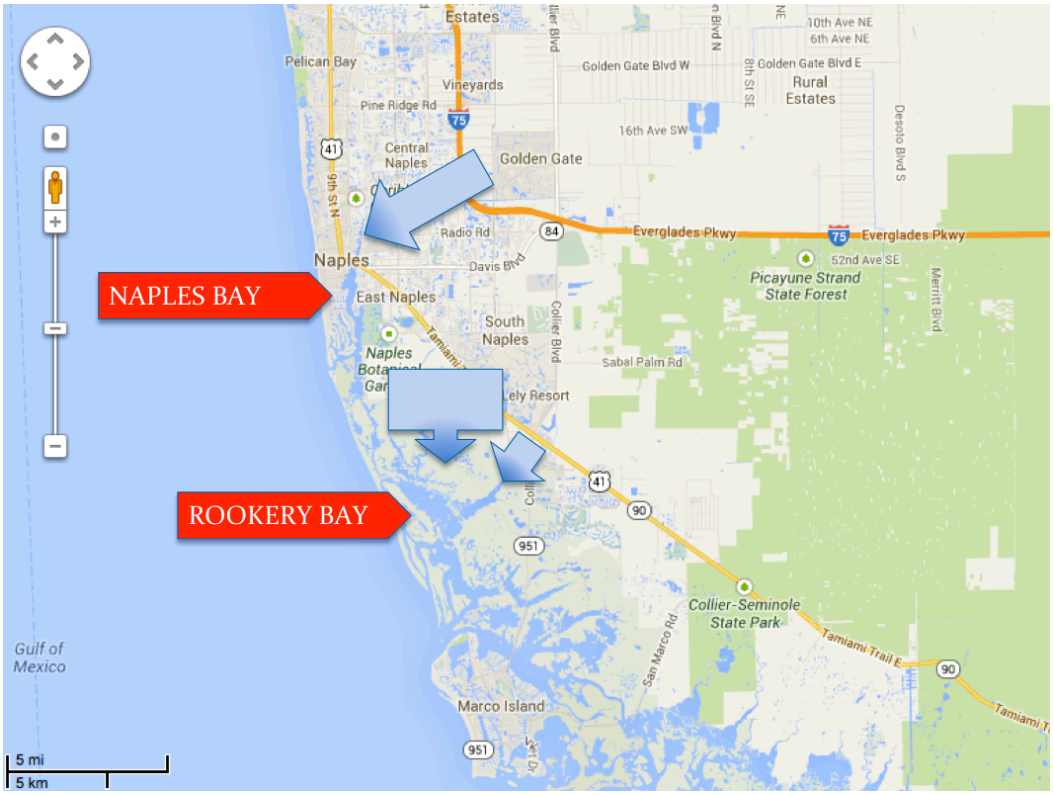

Figure 3. Map of southwest Florida (Google, 2014b)

On the south side of Naples, just below the Naples Bay, lies another minor watershed referred to as the Henderson Creek Watershed. Sheet flow from the south Naples area and water from Henderson Creek drain into the Rookery Bay (see Figure 3). This small watershed comprised of some surface water and a creek fed by the canal

system that seems to begin at I-75 and flow through construction zones (see figure 12) and mobile home parks (see Figure 17) is the source of much of the water for the Rookery Bay, which is described as "a large irregularly shaped estuary" (Carr, Beriault, Loger, Bertone, & Betz, 2012).

The community surrounding the Rookery Bay is located in Collier County, which currently has one of the highest rates of growth in Florida. The population of the county grew from 210,100 in 1998 (NERR, 2012) to 333,663 in 2013 and is projected to reach 441,900 by 2030 (Smith & Rayer, 2014). The current US Census estimates for 2013 reflect that the county is approximately 10 percent above Florida's average for the demographic categories of both 'Persons 65 years and over, 2013' and 'White alone, not Hispanic or Latino, 2013' (U.S. Census Bureau, 2014).

In addition to population increases, tourism continues to expand with an estimated 1.3 million visitors in the first nine months of 2014, which reflects a 6% increase over the same period in 2013 (Research Data Services, 2014), and the tourist tax revenue has nearly doubled from 2011 to 2014 (Jackson, Scheff, & Breitbach, 2014). This growth in population and tourism brings both opportunities and challenges. "Many of the new residents are from other areas of the country and do not understand the impacts their actions can have on sensitive resources. Their ignorance inadvertently contributes to impacts. The continuous influx of new residents makes creating an informed public a continual challenge" (NERR, 2012).

In addition to the Rookery Bay National Estuary Reserve, there are several areas within the region that have been set aside for conservation purposes. These sites include:

Big Cyprus National Preserve, Everglades National Park, Ten Thousand Islands National Wildlife Refuge, Florida Panther National Wildlife Refuge, Corkscrew Swamp Sanctuary, Picayune Strand State Forest, Shell Island Preserve and multiple state parks (NERR, 2012).

Although studies from the Everglades (Voss, 2000; Gonzalez, 2005; Surratt, Shinde, & Aumen, 2012; Graf, 2013), Lake Okeechobee (Steinman, Havens & Hornung, 2002), the St. Johns Estuary (FDEP, 2002), the Tampa Bay Estuary (Russell et al., 2011; Osland et al., 2012), and other regional water features are beneficial, it is vital to study the local watershed and its surrounding community. Most of these studies, including others conducted in the Rookery Bay area (Lammers et al., 2011; Carr et al., 2012), have focused on the technical science. The crucial importance of localized attitudes cannot be overstated. It is essential to understand the attitudes and behaviors of the local stakeholders, their environmental decision-making process, and how the community determines value when facing environmental management issues.

Historical Background

The history of environmental impact, management, and focus extends backwards several centuries. There has been significant parallel transformation that has occurred among the local Rookery Bay estuary area, the broader field of environmental management and throughout business thought and practice.

A study of biomarkers in the Rookery Bay area was implemented to determine the history of the watershed (Donders et al., 2008). The results showed an initial shift of environmental conditions in the 1730's and then stability through the mid-1880s.

Drainage activity in the Everglades, the founding of the city of Naples located just north of Rookery Bay, and creation of settlements in the Rookery Bay area occurred in the 1880's. Diversion of natural water flows continued to increase over the next several decades (Carr, Beriault, Loger, Bertone & Betz, 2012; Lammers et al., 2013). In the 1960s, the population of Collier County, where Rookery Bay is located, surged along with the concomitant pressure on the environment. A multi-year study began in 1967 by The Conservation Foundation (1968) and then was continued through the use of Federal funds from 1970-1973 (Clark, 1975). "Since its inception in 1967, the study in Collier County recognized two inseparable goals: environmental protection and economic welfare" (Clark, p. 10). From 1967 through the late 1970s, legislative decision makers began to act and several regulations were created. The Coastal Zone Management Act (CZMA) of 1972 created the National Estuarine Research Reserve (NERR) System. "The federal government, by 1980, had designated two estuarine sanctuaries in Florida under Section 315; $1.5 million was available to the state for land acquisition in connection with the Rookery Bay National Estuarine Sanctuary in Collier County, while $50,000 was available on an annual basis for sanctuary management purposes" (O'Connell, 1985, p. 65). Within the NERR area (see Figure 4), Rookery Bay "occupies the central portion of the northern Reserve area" (AHC, 2012).

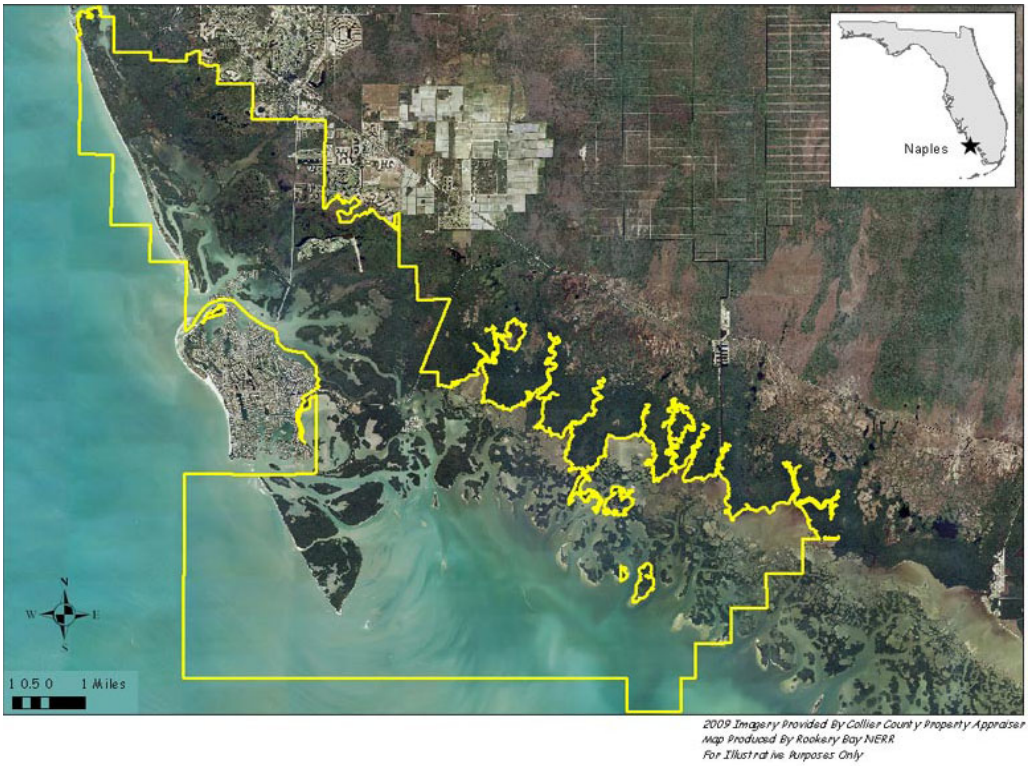

Figure 4. Map of Rookery Bay National Estuary Research Reserve (NERR, 2012)

In a similar timeframe, environmental management has moved through several different eras from no intervention before 1820, to exploitation through most of the 1800s, transitioning to an expert approach from 1880s-1920s, then a commodity era from 1920s to 1960. In the 1960s the environmental movement began and grew into a period of public involvement in the mid 1980s (Hawkins, 2011). This last transition corresponded to one of the earliest books on resolving environmental conflict by Gail Bingham (1986). The transition in environmental management has continued to change "from primarily a 'command and control' approach to a more transparent and collaborative framework" (Flamm, Reynolds, & Harmak, 2013, p. 154).

As this metamorphosis was occurring in the policy and legal realm in general as well as locally in Rookery Bay community, a change process was also taking place in organizational and business thinking. Tying back to the ideas of philosophers from the 1800s and early 1900s, Howard Bowen and others in the field of business ethics began to write about corporate social responsibility in the 1950s (Marens, 2008). Additionally Organizations began to consider stakeholder's perspectives of the environment in the 1950s (Selznick, 1949) and the term "stakeholder" was initially used in this context in 1963 (Freeman, 1999). In 1970, Milton Friedman, who was an influential economist, proposed in contrasting terms that, "The social responsibility of business was to increase profits" (Friedman, 1970, p. 32). In the 1980s, Freeman (1984) formalized Stakeholder Theory in his book *Strategic Management: A Stakeholder Approach*. In the same timeframe Peter Drucker, a highly influential management thinker, identified the role of stakeholders in the social responsibility of organizations (Drucker, 1984). Elkington addressed the idea of the sustainable corporation (1994) and introduced the triple bottom line that includes a focus by organizations on social, environmental and economic issues (1997). The concept and implementation of Stakeholder Theory and Corporate Social Responsibility (CSR) continued to develop in the throughout 1990s and 2000s (Donaldson & Preston, 1995; Hopkins, 2003; Werther & Chandler, 2006).

Description of a Stakeholder

When attempting to address local environmental management concerns, one of the primary elements that needs to be considered is the identification of the parties that are involved. A key component in recognizing stakeholders is establishing an

understanding of what constitutes a stakeholder. There are many definitions of what constitutes a stakeholder (Mitchell, Agle, & Wood, 1997) and many descriptions tie back to the definition offered by Freeman: "A stakeholder is any group or individual who can affect or is affected by the achievement of the organization's objective (Freeman, 1984, p. 46). In fact, Reed et al. (2009) applies this definition to stakeholders in natural resource management. This definition is a starting point and is not all-inclusive. For example, Grimble (1998) proposes that the interactions of people that affect and are affected vary in intensity.

Another variant that aligns with a common description of a stakeholder is: "Any group of people organized, who share a common interest or stake in a particular or system" (Grimble & Wellard, 1997, p. 175). The concepts of the stakeholder and participatory action that has been used broadly in the developing world to address conflict challenges has recently received more attention in addressing conflicts in the developed world (Reed, 2008). "Most conservationists focus on engaging those who hold a stake (whether directly or indirectly) in the scope of their initiative, rather than attempting to meaningfully engage with the wide public" (Reed, 2008, p. 2418). Smudde and Courtright (2011) expand the idea of identification to proposing that it is also important to consider how stakeholders are created. This could include a person's connection to a group and recognition by decision makers. Along with the definition and identification of stakeholders, businesses, government agencies, and other organizations have grappled with the challenge of identifying their responsibility in engaging stakeholders as they integrate and balance the social, environmental, and economic

aspects of their operations. In the pursuit of shared value, it is crucial to understand the interdependency between organizations and stakeholders on multiple levels and move from viewing the embedded challenges as trade-offs to recognizing the creative tension that can be used as a springboard for conflict intervention.

Description of Shared Value

The interaction between social, environmental, and economic needs includes both costs and benefits. For example, "societal needs, not just conventional economic needs, define markets, and social harms can create internal costs for firms" (Porter & Kramer, 2011, p. 65). Additionally, social and environmental issues, which have been previously categorized as externalities within the field of economics (Cornes & Sandler, 1986), need to be understood, internalized, and addressed (Porter & Kramer). When considering the costs, benefits, and externalities as well as the concept of value, it is helpful to define the related ideas of social capital, natural capital, and economic capital and identify the tension between these concepts.

Although the connotation of capital often has a financial or economic implication, both social and natural capital have been addressed in the literature surrounding environmental management. The term "natural capital" is presented throughout the environmental management literature (Feurt, 2007; Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Lubell, 2004) and generally refers to environmental resources. Although the wording "natural capital" has been used in press since at least the early 1900s (WSJ, 1910), Hawken, Lovins, and Lovins (1999) provided an extensive description of natural capital in their book entitle, *Natural Capitalism* and the

concomitant article (Lovins, Lovins, & Hawken, 1999). Hawken et al. expand the definition of natural capital to include "resources, living systems, and ecosystem services" (p. 4). In addition to economic and natural capital, there is notable value provided by the input of people, groups, and the resulting relationships. First used in the early 1900s (Hanifan, 1916), the term "social capital" has been broadly defined (Grafton, 2005; Jones & Clark, 2013; Putnam, 2000) and generally includes trust, reciprocity, learning, social networks, and a sense of community.

The ideas of social, environmental, and economic capital are important because they help to understand what is desired or, in other words, value. The determination of value derives from the relative desirability of those who affect or are affected or as Wood (2010) states, "Stakeholders are the source of expectations about what constitutes desirable and undesirable firm performance" (p. 69). Additionally, "According to [Freeman's] definition, the community surrounding a firm's plants, warehouses, and waste disposal sites may be considered an important organizational stakeholder" (Kulkarni, 2000, p. 217). Likewise, Pohlman and Gardiner (2000) highlight the importance of connecting stakeholders to value driven management.

When considering the concept of shared value it is critical to not reduce "corporate sustainability to resource efficiency" (Camillari, 2014, p. 51). To fully appreciate the idea of creating value over time, or sustainable value, it is beneficial to place the triple bottom lines of social, environmental, and economic interests within an integrated systems framework. "The triple bottom line framework is built on the recognition that business sustainability depends upon positive stocks of economic,

environmental, and social resources" (Rodriguez, Roman, Sturhahn, & Terry, 2002). A balance of these realms is necessary to produce sustainable value, which requires a shared or co-creation of value (Michelini & Fiorentino, 2011; Nenonen & Storbacka, 2010).

Description of the Social Issue

Although shared value and sustainable value are not new academic concepts and "faculty in business schools are encouraged to do empirical and conceptual research in the area of exploring the creation of sustainable value for stakeholders" (Williams, 2014, p. 21), there is still a pragmatic void at the community level. Lack of understanding, lack of common ground, and marginalization of some stakeholders exacerbate the conflict communities face in attempting to address environmental management issues.

Using a positive conflict (Deutsch, 1973) and constructive conflict (Kriesberg, 2007) approach to address the tension between the elements of the triple bottom line and between the interests of the stakeholders, sustainable value can be established and optimized. Within this conflict space, organizations often attempt to understand the stakeholder's interests and views from within the organization's proverbial walls.

As a key stakeholder (Freeman, 1984), the perspective of the community needs to be understood. If an organization is able to effectively operate at a high level of business ethics and sustainable value is to truly be achieved, the solution needs to include the community's perspective of the social, environmental, and economic challenges and the interaction between these elements. A case study of the conflict between social, environmental, and economic concerns in the Rookery Bay, Florida estuary is used to consider these issues.

Problem Statement

Recognizing the stress and conflict that is currently central to the lived experiences of the community surrounding the Rookery Bay estuary as their water challenges affect them in a myriad of ways, there is a clear and specific community-based problem that needs to be addressed. The purpose of this case study research was to discover the shared value and collaborative resolution responses for the people of the Rookery Bay area that can extend to other local environmental management scenarios.

The emphasis is usually placed on the perspectives of policy makers, business, and other related organizations. In reality, all of the stakeholders need to be included in the conversation because the problem of environmental management, and specifically water conservation, affects everyone. Shared solutions need to be implemented to deal with the community challenges that affect everyone. These solutions need to address the social, environmental, and economic issues – they must be both scalable and holistic as well as touch on the individual perceptions that impact shared meaning.

Justification

Separately the concepts of stakeholder management, collaboration, business ethics, environmental conflict, and the triple-bottom-line have each been addressed in the research, however it is important to view all of these ideas together in a common paradigm. The recognition and input of stakeholders, at least at some level, is acknowledged as a necessary and helpful element of addressing public conflicts. Additionally, the importance of dialogue and collaboration has been widely addressed in practice and in the literature. The field of business ethics has accepted the necessity of

considering stakeholders and considering social and environmental issues along with profits; however, the effort of the business community is highly organizational-centric. Although it may be beneficial, the ongoing struggle of environmental conflict in local communities demands more than businesses, governments and other organizations considering the array of stakeholders and attempting to foster conversation. Using the tools and methods from the field of conflict resolution, an understanding of the stakeholder attitudes toward social, environmental, and economic issues and the resulting tension between these attitudes can be established, addressed, and used to generate shared value through collaborative decision making.

Tension exists in the interaction between social, environmental and economic interests of an individual or organization. To achieve value that is sustainable, an organization must navigate this tension, or conflict, that exists both between these perspectives and between the related stakeholders. In addition to the myriad of interests and positions, the relationship and level of intensity between the stakeholder and the problem varies both between and within stakeholder groups and is subject to change over time. These concerns apply to each primary, secondary, and fringe stakeholders as well as the organization as a whole.

From a macro viewpoint, this dynamic within a singular system, and the embedded challenges, is multiplied by every organization including for-profit, non-profit, and government entities. Rockloff and Lockie (2004) expanded the concept even further and posed the following:

> Worldwide, conflict among stakeholders in natural resource decision-making over competing interests and goals continues to impede sustainability efforts…. Consequently, in the coastal catchment landscape—with its complex ecological problems, diverse interest groups and multiple resource uses—there is significant potential for conflict among resource users. (p. 81)

Using a local water conflict to consider these challenges and the concomitant social, environmental, and economic lenses used by each stakeholder, this study sought to increase the understanding of the conflict and identify collaborative conflict resolution strategies that reflect shared value. Frustration and conflict surrounding water issues are currently central to the lived experiences of people in coastal communities. This clear and specific problem needs to be addressed along with overall value creation of the organizations and communities that are affected.

Purpose and Goals

The purpose of the study is to shed light on the tension between the economic, environmental, and social aspects of the stakeholder's attitudes and behaviors surrounding water use. An understanding of the existing tensions and the varying ways of dealing with any potential disparities is important because this establishes a baseline for conflict intervention. Contrastingly, past research has aggregated single-dimension stakeholder perspectives for use in policy creation, strategy development, and decision-making. The resulting gap between the research and ongoing environmental management challenges is the understanding of underlying tensions that are imperative for use in conflict intervention.

The first goal of this research is to understand points of shared value of the community facing environmental management issues. For positive change in environmental management to be effective and sustainable, a common ground is necessary. Establishing shared meaning, shared stories, and shared understanding leads to shared value that can be sustained over time.

The second goal of this research is to understand the perspective of community stakeholders toward the social, environmental, and economic issues related to their local community. Because stakeholders' attitudes and behaviors are not single-dimensional, the intensities of perspectives toward these different issues and the internal and external interaction and tension that exist between these issues are essential for effective conflict intervention and sustainable environmental management.

The third goal of this research is to understand stakeholder attitudes and behaviors toward water conservation. The internal and external tensions and the pursuit of shared value do not occur in the abstract. It is necessary to establish perceptions of attitudes and behaviors in a context in order to evaluate the stakeholder feedback. Placing the input within the water conservation context also allows this research to inform the conflict intervention efforts and research of other environmental conflicts and community disputes.

Researcher Context

Before the pursuit of these goals and the outcomes are the research is presented, I will provide context from the researcher's perspective. When my conflict analysis and resolution studies are layered on to my many years of operations management experience

in government, start-up, and corporate business; multiple business-focused degrees; several years of University teaching experience in multiple business disciplines, the concept of value, which is inclusive, holistic, and optimal, emerged in my thoughts as an essential aspect of individuals, groups, communities, and organizations, communities. My father modeled, although rarely discussed, a blended economic, social, and environmental perspective that made wide-ranging and significant impacts in the world where I grew up. This lived experience included large amounts of time spent in a wide array of nature settings. As my business knowledge and experience expanded, with the concomitant frustration regarding myopic focus on maximizing monetary value, gratefully, I was able to reflect on the insights demonstrated by my upbringing. Within this context lies my pursuit of the understanding of implementation of sustainable value that is shared among stakeholders.

Theoretical Framework

Value creation that is created within a community of stakeholders can be referred to as shared value. When this value is maintained over time, shared value becomes sustainable value. Within this space of the pursuit of sustainable value and specifically to inform the analysis of this research, I propose the nascent underpinnings of the theoretical framework of Value Optimization Theory. The framework that surrounds this research is based elements that include the following:

- The parties include those who affect or are affected within a specific context;
- The parties have the ability to communicate and choose;

- Shared meanings lead to shared understanding that leads to shared story and then leads to shared value;
- Building a sense of community involves openness with boundaries; and,
- All interaction occurs within a system.
- Value creation is a process and value is more than a short-term marker therefore both concepts should be considered in the context of time.

These value related concepts of the stakeholder, shared meaning, choice, collaboration, community building, and a systems perspective are built on extensive literature and foundational theories. The specific theories that inform the current theoretical framework used to consider the Rookery Bay case study includes Stakeholder Theory, Rational Choice Theory, Symbolic Interactionism, and Systems Theory. This wide array of literature and these undergirding theories will be presented and reviewed in greater detail in Chapter 2.

Chapter Conclusion

Dramatic human intervention over the past nearly 150 years in the Rookery Bay area has had a significant negative impact and created a range of challenges that must be addressed. As an essential element of creating common ground and long term shared value in this region is an understanding of the stakeholders and their perspectives. In addition to a review of the background of the Rookery Bay area and the description of relevant concepts, this chapter delineated the problem, justification, and expected contribution of the current research as well as the specific goals. Additionally, the researcher context and theoretical framework material is presented because it is clear that

this qualitative research effort does not stand by itself. The current research is built upon a solid body of existing literature and in many ways is a continuation and substantiation of the findings embedded in the previous research surrounding this current research topic. The next chapter, which reviews the related literature, will cover many of the relevant sources that paved the way for this case study research. In the chapters that follow the research method, results, and the resultant discussion will be presented. The research method chapter delineates and describes the research design, data collection and data analysis stages of the research. The fourth chapter addressing the research results includes descriptions of each of the participants and an explanation for each of the emergent themes. The final chapter of this research presentation discusses the research findings and their connection to the research questions, and offers recommendations for the future.

Chapter 2: Literature Review

Introduction to Literature Review

A wide body of literature exists that describes stakeholders' common attitudes and behaviors, common interests, and their shared understanding. These areas include stakeholder management, analysis, and dynamics as well as collaboration in relation to water issues and environmental management. This material establishes an important baseline for the consideration of the community facing environmental management issues in the Rookery Bay watershed.

Common Attitudes and Behaviors

It is important to understand the attitudes and behaviors as well as the underlying drivers (Hough, 1988). In a broad public opinion survey by Lamm (2013) of Floridians and their perception of water, "Florida residents place the most importance on clean drinking water. They are then concerned with: clean beaches, oceans, bays/estuaries, lakes, and rivers; plentiful water for agriculture; and clean groundwater" (p. 5). The findings of this study also reveal the perception that water quality is declining and 40% of the state's residents have had water quality challenges. However, in spite of their concerns, survey respondents also admitted that they often participate in activities that are not environmentally beneficial such as overuse of water and lack of caution regarding storm drain runoff.

Robelia and Murphy (2012) point to a link between education and behavior as well as a general lack of public awareness toward water quality. Wyman, Escobedo, Stein, Orfanedes, and Northrop (2012) add that "although it is important to integrate the

public into the decision making process regarding [environmental issues], it is often difficult because of different interests, values, and contexts, and lack of information" (p. 153). The inconsistent levels of understanding between stakeholder groups and general misunderstanding of environmental management information are an important part of the overarching solution to the conflict (Kulkarni, 2000). Schueler (2000) further suggests that personal responsibility needs to be connected to an understanding of behavior that affects the watershed. He proposes that a formal watershed ethic should be offered to promote improved stewardship.

There are a myriad of reasons for the many pragmatic and systemic tensions that exist in the pursuit of shared understanding and collaboration. Embedded in these challenges and unknowns is the concept of risk that is an important consideration when making decisions regarding environmental management issues (Pollard, Davies, Coley, & Lemon, 2008). Additionally, Benn, Dunphy, and Martin (2009) identify the importance of governance when dealing with environmental risk. In an attempt to formalize this process even further, Varnell and Hardaway's (2005) risk assessment tool "used social and physical metrics to focus the managers' concern to a limited number of high-risk areas of significant natural resource value" (p. 767).

In an effort to manage the risks and provide improved clarity, several methods of categorization have been used to classify a wide range of attitudes relating to areas such as the importance of ecology (Brogden, 2001), emphasis on recreation (Jett, Thapa, & Ko, 2009) and the economic impact of the natural resources (Dichmont, Pascoe, Kompas, Punt, & Deng, 2010).

Multiple models of environmental behavior were reviewed and segmented by Kollmuss and Agyeman (2002) and the results were separated into three overarching factors: demographic, internal and external. The demographic category includes elements such as age, education, and gender; the internal category includes elements such as knowledge, attitudes, and awareness; and, external category includes elements such as institutional, economic and social.

Using cultural approach to classify attitudes, Feurt (2006a; 2006b) presents a model that categorizes environmental attitudes into the following six categories:

- Water is the basis for life;
- Water and land in a natural state, linked as a watershed, function as a water purification and storage system;
- Water is a resource for humans to use and manage;
- Water is a commodity;
- Water is landscape; and
- Water is waste.

Similar to the previous classification approaches, another way of parsing the perspectives are through the use of social, environmental, and economic lenses. Throughout the literature these areas of focus have been compared and blended in various attempts to find shared understanding. In addition to viewing these three concepts as areas of focus, they can also be considered as stocks of capital.

In their description of a "model for building a local sustainable economy" Glavas, Senge, and Cooperrider (2010, p. 26), identify social capital as an essential criterion for

success and a prerequisite for change. Jones and Clark (2013) reiterate the crucial nature of social capital and take a deeper look at the related costs and benefits to the community when pursuing environmental issues in coastal areas. Additionally, Grafton (2005) explains how social capital can be increased in environmental management and other co-management initiatives through actions such as volunteering and co-operation or decreased through actions such as vandalism and other types of breaking trust.

Berkes (2009) proposes that practice of adaptive co-management includes knowledge generation and collaborative learning which are methods of building social capital. Because of the inherent complexity, a system-based approach to socio-ecological concerns demands knowledge generation and sharing (Berkes, 2009). Additionally, Hage, Leroy and Peterson (2010) propose that environmental knowledge production, when done in conjunction with stakeholder participation, is an impactful technique for reducing risk and uncertainty.

The literature surrounding various studies on environmental issues refers to this process of collective learning as mutual learning (Schwilch et al., 2012; van de Kerkhof & Wieczorek, 2005) or social learning (Berkes, 2009; Garmendia & Stagl, 2010). Additionally, Garmendia and Stagl (2010) connect social learning to the management of the many conflicts that surround socio-environmental sustainability. "Social learning must be conceived as more than just cognitive learning. Learning together to manage together has also to do with changes in attitudes, beliefs, skills, capacities, and actions in and among the counterparts" (Craps, 2003).

When combined with the proper motivation, social capital can significantly

impact water-related issues. "The importance of a real or perceived water quality or quantity problems in mobilizing social capital can not be overestimated" (Mullen & Allison, 1999, p. 659). Community support, including both interest and action, is essential for long-term sustainable environmental management whether the motivation is shared problems and fears or shared value (Wondolleck & Yaffee, 2000). Similarly, Mullen and Allison suggest "locally-led or community-based watershed management initiatives are more likely to take place when there are local concerns or problems that mobilize social capital to address them" (p. 659).

The environmental and social challenges that are embedded within watershed management, and the tension within the interaction, require effective environmental governance, social coordination and collective action (Ferreyra & Kreutzwiser, 2008). A thorough understanding of attitudes, beliefs, and values is an important part of governing the ecosystem (Bryan, Raymond, Crossman, & Macdonald, 2010) and understanding the trade-offs and impacts between conservation and social impact in coastal zones (McShane et al., 2011; Tzoulas et al., 2007; Vanclay, 2012).

In addition to the conflict between social and environmental attitudes and initiatives, it is also helpful to consider the tension between economic and environmental attitudes. Several research efforts have attempted to place an economic value on wetlands, green infrastructure, and recreational usage of natural resources (Bardecki, Manning, & Bond, 1989; Shrestha, Stein, & Clark, 2007; Vandermeulen, Verspecht, Vermeire, Van Huylenbroeck, Gellynck, 2011). Others such as Carter (2009) and Riggs (2004) have offered presentations looking at ecological constraints, regulations, and

market incentives in an attempt to blend the economic and environmental interests. Hawken et al. (1999) cautions that a monetary value cannot reasonably be placed on the environment, however Russell et al. (2011) applied the Relative Valuation of Ecosystem Services Index (RESVI) as a common value metric to blend economic valuation and stakeholder interests in a study of the Tampa Bay Ecosystem in Florida.

Although these realms may not smoothly align and opposing tension may exist, there are clearly ecological, economic, and social aspects of wetlands (Smit & Coops, 1991). In spite of the challenges in navigating the conflicting issues and attitudes from the stakeholders, it is important to pursue solutions that combines social, environmental, and economic value in a sustainable manner. More than a recommendation, "nearly every relevant piece of major environmental legislation, from the National Environmental Policy Act to the Magnuson-Steven Fishery Conservation and Management Act, requires substantial public involvement and the explicit consideration of relevant social, cultural, and economic factors in decision-making" (Hawkins, 2011, p. 2). This list of legislation also includes the Coastal Zone Management Act and Florida's Aquatic Preserve Act of 1975 (Kessler, 2004).

Thoreson and Stopka (2012) define multiple objectives related to economic, environmental, and social equity dimensions, pinpoint uniquely local solutions, connect to like-minded partners, and make it relevant. Additionally, Soviana and Kuhl (2013) link coordination to economic, social and environmental outcomes. Even though these disparate interests and attitudes may not be able to find a common financial baseline for

comparison, a shared understanding can create the common ground to manage the conflict.

Common Interests (Stakeholders)

In addition to the consideration of an individual's attitudes, it is also important to understand how these people are affected by or affect a scenario. These stakeholders who have commonalities are often organized into groups by their underlying attitudes. It is helpful to understand stakeholders and their dynamics through analysis and management approaches.

Stakeholder analysis and management. Reed et al. (2009) defines "stakeholder analysis as a process that: i) defines aspects of a social and natural phenomenon affected by a decision or action; ii) identifies individuals, groups and organisations who are affected by or can affect those parts of the phenomenon (this may include nonhuman and non-living entities and future generations); and iii) prioritizes these individuals and groups for involvement in the decision-making process" (p. 1933).

Grimble (1998) connects stakeholder analysis to the embedded conflicts and trade-offs that exist with scarce resources that are encountered in natural resource. The conflict and tensions can also derive from the unequal information that exists between stakeholders (Kulkarni, 2000). Borisova, Racevskis, and Kipp (2012) show how the use of qualitative methods, such as situational assessments and focus groups in an environmental conflict scenario in Florida, allow researchers to effectively analyze stakeholders.

As stakeholders are identified and established, ongoing analysis and management

of stakeholders are an essential part of the process of creating common ground and shared understanding. This includes various approaches and organization of the concomitant data. Additionally, updating this information throughout the process is also beneficial (Rockloff & Lockie, 2004). Stakeholder management includes addressing the question of how stakeholder relationships can be improved (Smudde & Courtright, 2011).

Stakeholder frameworks have been organized around multiple factors including various criteria, degrees of participation, or participatory techniques (Luyet, Schlaepfer, Parlange, & Buttler, 2012) as well as power relationships, interests relationships, and implementation barriers (Boonstra & de Vries, 2008). Others, such as Billgren and Holmen (2008), have viewed stakeholder analysis through a cultural lens when considering natural resource management. Stakeholders have also been managed through learning or various constraint-based focuses (Kaplowitz & Lupi, 2012). Stakeholders have been segmented several ways in natural resource management; however, segmentation by roles, legal standing or resource accumulation is not enough to effectively manage the conflict, it is essential to understand the underlying attitudes and behaviors.

Stakeholder dynamics. A concept related to stakeholder identification and management is stakeholder salience that addresses the prioritization of stakeholders often by power, legitimacy and urgency (Mitchell et al., 1997). Stakeholder salience ”goes beyond the question of stakeholder identification, because the dynamics inherent in each relationship involve complex considerations that are not readily explained by the stakeholder framework as it currently stands. What is also needed is a theory of

stakeholder salience that can explain to whom and to what managers actually pay attention" (Mitchell, p. 854).

Wilson and Wiber (2009) purport that, "power varies among stakeholders" (p. 559). This variation extends to the identification and interactions surrounding stakeholders. Because of the dynamic nature of these interactions, it is important to pursue ways to maintain stakeholder relationships (Smudde & Courtright, 2011). This is crucial because Flamm et al. (2013) point to the dynamic nature of stakeholders' values and behaviors. A single survey is helpful, but establishing an understanding over time is essential. Additionally, "practitioners can expect that whereas public values change very slowly, attitudes, norms, behaviors, and intentions can be expected to shift more rapidly" (Flamm et al., 2013, p. 162).

Along with changes over time, changes in attitudes and behaviors can also be affected by location, demographics, trust, and current threats. Hoehn and Thapa (2009) discuss the link between threats and stakeholder attitudes on coasts. In the time of crisis these threats, whether real or perceived, affect attitudes and perceptions. Using the Gulf oil spill as a case study, Safford, Ulrich, and Hamilton (2012) pointed to factors including "…connections to natural resources and vulnerability" (p. 37) having impacts on stakeholder attitudes.

This connection to one's local environment has been described as a 'sense of place' (Clayton & Opotow, 2003; Thomashow, 1996). Because a 'sense of place' affects attitudes (Larson, Wiek, & Withycombe Keeler, 2013), community, or place-based, stakeholders are important within environmental conflicts (Larson & Lach, 2008).

Kessler (2004) suggests that in addition to capacity factors such as social and economic resources, contextual factors such as demographics, and the embedded diversity, impact the efforts of a stakeholder group. Often diversity and trust are interrelated. Mathie and Green (1997) suggest that diverse stakeholders are beneficial but usually the groups tend to fall into expected patterns. "Attitudes, perceptions, and beliefs among the various stakeholder groups may need to be discerned because ultimately these will influence trust. Establishing trust between parties is considered a prerequisite to successful conflict management" (Kessler, 2004, p. 14).

The process of developing trust is a necessary part of the conflict management process by establishing common ground so that the stakeholders can move toward shared value. Unfortunately this is not a predetermined feature of stakeholder interaction. Wilson and Wiber (2009) related their research experience of how "community members report that government is more interested in forming partnerships with the corporate sector than with the people who rely on local resources" (p. 559). Active conflict intervention is necessary to promote common ground and generate shared understanding within the system in an effort to move toward shared value.

Shared Understanding (Collaboration)

These differing interests and attitudes generate tensions that are a normal part of environmental disputes. These conflict elements need to be addressed and managed as the stakeholders' move toward shared understanding and shared value. In a study regarding Florida water issues, Lynne, Shonkwiler, and Wilson (1991) present a friction model that recognizes the tensions from disparate attitudes and suggests that a threshold

exists when the conflict moves from latent to manifest. "Beyond the threshold level, then, belief and attitude differences cause conflict" (p. 340). The goal is not homogeneity; rather that collaboration will propel the stakeholders toward a shared understanding even as their disparate attitudes exist.

Collaborative approaches have been used as a primary approach in managing watershed councils or multiparty advisory committees that administer many of the National Estuary Programs (NEPs). Wondolleck and Yaffe (2000), authors of a book on collaboration in natural resource management, recognize the appropriate fit of collaboration and local environmental management when they suggest, "programs that successfully draw on a sense of place are sensitive to issues of geographic scale" (p. 75). However, environmental management often consists of complex challenges and "clearly, there is not a 'one size fits all' for participation processes" (Kessler, 2004, p. 21).

"Collaboration is difficult to achieve because of a variety of individual, institutional, and community barriers, including insufficient guidance and support from Federal land management agencies to their employees and communities" (USDA, 2006, p. 19). Through joint fact-finding, shared learning, and engaging in constructive conflict, collaboration helps stakeholders to build bridges from misinformation and exaggerations to share understandings. Similarly, DuPraw (2014) describes this collaborative process of building trust as shared focus. "Collaboration holds great promise but must be bounded by mechanisms to ensure accountability of the process and those involved in it to existing laws and the rights of others not sitting at the table" (Wondolleck & Yaffe, 2000, p. 229). This includes the importance of public information and transparency (Lepesteur, Wegner,

Moore, & McComb, 2008) that can be used by stakeholders for self-education (Ernst, 2001). This also points to the need for structured approaches such as collaborative natural resource management (Conley & Moote, 2003) and the collaborative leadership model (Berlioux, 2008). Additionally, Dalton and Harter (n.d.), in their EPA handbook, describe collaboration mechanics and best practices. Other specific collaborative techniques include the inclusion of knowledge preferences, and values into decisions (Lynam, de Jong, Sheil, Kusumanto, & Evans, 2007).

When designing participation approaches in water management, better design can lead to lower cost decisions and increased social capital (Von Korff, d'Aquino, Daniell, & Bijlsma, 2010) and consensus building can leading to increased capital (Innes, Gruber, Neuman, & Thompson, 1994). This includes assessing, throughout the process, the collaborative capacity of the stakeholders including the social, environmental, and economic realms (Cheng & Sturtevant, 2012), because of the embedded costs of collaboration to individuals and organizations (Manring, 1998). In addition to the hard work of moving through the current challenges and the strains of past conflicts, collaboration, and the resulting social capital, also helps communities to better prepare for future challenges (Wondolleck & Yaffe, 2000, p. 23).

Establishing common ground through collaboration and managed interaction is an essential part of the conflict resolution process. By blending stakeholders' attitudes and their social, environmental, and economic perspectives, shared understanding establishes an important foundation for shared value. Additionally, Adaptive Co-Management (Armitage, Derkes, & Doubleday, 2007), the use of reframing in intractable conflicts

(Lewicki, Gray, & Elliott, 2003), and other community-based alternate dispute resolution (ADR) processes (Carpenter & Kennedy, 1988), have all been applied to managing and resolving the challenges of sustainable value. The forest service has used social capital-building techniques such as ADR and network analysis to enhance their environmental management efforts (Whitall, 2007). Understanding community attitudes and stakeholder groups, conflict resolution methods can assist the environmental management process and constructive conflict can result in common value that includes social, environmental, and economic capital. When this value is shared by the stakeholders and is maintained over time, shared value becomes sustainable value.

Theoretical Framework

It is important that the research activities that are central to the consideration of this current concern are based on well-established theoretical underpinnings. Four specific overarching theories will be presented to provide a foundation to the related research and consider the given scenario from multiple viewpoints. The applicable theories that are discussed below include Stakeholder Theory, Rational Choice Theory, Symbolic Interactionism, and Systems Theory. Each of these theories interrelates in various ways to provide a more complete theoretical platform to analyze and impact the community-based environmental conflict.

Stakeholder Theory

Although Stakeholder Theory is often tied to organizational and business ethics; the underlying structural elements are based on social theories that focus on power, identity and social construction. Specifically, Stakeholder Theory aligns with the social

theories of Feminism and Systems Theory (Laplume, Sonpar, & Litz, 2008). In alignment with ideas presented by Ury, Brett and Goldberg (1988), this theory also promotes the transition from a focus on rights and power to an interest-based approach to dealing with conflict.

Habermas' communicative action theory, and the embedded idea of shared understanding, affected the development of stakeholder theory (Reed et al., 2009). Additionally, the concept of the stakeholder is mentioned throughout the conflict intervention literature particularly in relation to collaboration (Mandell, 2001; Winer & Ray, 1994) as well as the field of conflict system design (Costantino & Merchant, 1996). Stakeholder Theory and the concept of the stakeholder have been applied widely throughout the field of natural resource management and environmental management (Borisova et al., 2012; Feurt, 2007; Kessler, 2004; MacPherson & Tonning, 2003; Mutekanga, Kessler, Leber, & Visser, 2013; Zorrilla et al., 2010).

Freeman (1984) provided the seminal description of Stakeholder Theory in his book, "Strategic Management: A Stakeholder Approach". This approach stands in contrast to the traditional input-output model of the firm that had traditionally been used to understand businesses and organizations. The Stakeholder Model, as it was original presented, recognized eight to eleven primary stakeholders including: customers, communities, employees, trade associations, suppliers, governments, investors, and political groups (Donaldson & Preston, 1995; Freeman, 1984). Additionally, Hart and Sharma (2004) suggested that an additional layer should be added for fringe stakeholders. There has been continued discussion on how broad or narrow should be the definition of

a stakeholder as well as how to categorize the specific classifications or how weightings should be selected (Mitchell et al., 1997). Smudde and Courtright (2011) propose, "Stakeholder theory…is a holistic organizational function grounded in rhetoric and concerned with answering three fundamental questions: (1) How are stakeholders created? (2) How can relationships with stakeholders be maintained? and (3) How can relationships with stakeholders be improved?" (p. 137). Each of these three questions will be considered in following sections.

Randolph Pohlman, former Dean of the Wayne Huizenga Graduate School of Business at Nova Southeastern University, adapted the elements of the Stakeholder Model to value maximization in the book: "Value Driven Management: How to Create and Maximize Value Over Time for Organizational Success" (Pohlman & Gardiner, 2000). Building on this theme of stakeholders and value, key management thinker, Michael Porter described how to move from the vicious short-term cycle of shareholder value to the innovative and strategic approach of creating shared value by engaging stakeholders (Porter & Kramer, 2011). In fact, he specifically states: "Companies can create economic value by creating societal value" (p. 67). In another description of stakeholder value, Laszlo (2008) describes that 'value perceived by the stakeholders' might be a more appropriate phrasing. The foundations of Stakeholder Theory will be used to gain a better understanding of the attitudes of stakeholders toward social, environmental, and economic value within the local environmental management context.

Rational Choice Theory

The central position of rational choice theory proposes: "When faced with several courses of action, people usually do what they believe is likely to have the best overall outcome" (Elster, 1989, p. 22). Stated another way, "Individual persons or 'agents' try to maximise given utility functions under given constraints" (Welp et al, 2006, p. 174).

Gary Becker (1976), who was one of the initial proponents of Rational Choice Theory, used what he referred to as the 'economic approach' to show that this line of reasoning can be applied to a wide range of fields and decisions. This approach is highly utilitarian and appears to be most applicable when there is a clear goal. Harmon and Mayer (1986) also describe the connection economic theory to non-market decision-making in rational choice theory. In light of the expanded possibilities for the application of trade-offs in the realm of scarcity, Francis (1990) stated, "It is not surprising that rational choice models would find broad acceptance in the natural resources field" (p. 275).

Lubell (2002, 2004) and Ostrom (1990, 1998, 2005) connect the concepts of rational choice, collective interests, and the environment. More specifically, the rational actor model has been applied to implementation of the National Estuary Program (Lubell, 2003) and many government approaches to environmental management (Wilson & Wiber, 2009). Additionally, Lubell (2004) states, "…estuaries face collective- action problems similar to those suffered by other common-pool resources, namely overexploitation of ecosystem services and undersupply of natural capital (Lubell, 2004, p. 677). Similarly, Buanes, Jentoft, Maurstad, Søreng, and Karlsen (2005) and Lubell

(2002) identify a correlation between stakeholder participation in environmental action and the perceived level of expected positive value based on a rational choice approach. These rational actor choices aggregate into collective action. The varying attitudes and choices both at the individual actor level and collective level can lead to conflict.

In contrast to Habermas 'rational communication' approach, that is linked to stakeholder theory, that includes communication and shared understanding; the rational actor approach largely views the actor's choices to be made in a vacuum (Reed et al., 2009; Renn, 2006). Although rational action, and the associated rational actor, is predominantly concerned with behaviors and outcomes and not the underlying ethics and perceptions, rational choice theory is highly relevant to the study of attitudes in environmental management for several reasons. Much of the existing policy decisions, legislation, and governance structures are based on this approach. Additionally, collective interest and collective action (which are linked to Rational Choice Theory) are connected to the mechanics of collaboration.

Symbolic Interaction Theory

Symbolic Interactionism is rooted in subjective meaning. This theory provides another, albeit crucial, perspective to consider in relation to local environmental conflicts. Herbert Blumer coined the term, "Symbolic Interactionism" in 1937 (Kuhn, 1964; Ritzer & Goodman, 2004). Symbolic Interactionism "does not regard meaning as emanating from the intrinsic makeup of the thing that has meaning, nor does it see meaning as arising through a coalescence of psychological elements in the person" (Blumer, 1998, p. 4). Instead, meaning is presented as a shared concept that arises from the interaction.

Blumer credits a lengthy list of thinkers, particularly George Herbert Mead, with their input that led to the formation of the theory.

Symbolic Interactionism recognizes the construction of race, class, and gender (Denzin & Lincoln, 2008) and extends the idea of interaction based on shared meaning to a broad, adaptive consideration of social issues (Willis, 2007). Within this theory, the individual has the ability to both define and determine his or her world and does so in concert with those around them as shared meaning is constructed. Therefore, there is a melding of an individual actor and collective action (Ballis, 1995). Symbolic Interactionism Theory suggests that a local narrative can be established among the participants involved in the struggle.

Ritzer and Goodman (2004) present the following list to summarize the core principles of Symbolic Interactionism:

- Human beings, unlike lower animals, are endowed with the capacity for thought.
- The capacity for thought is shaped by social interaction
- In social interaction people learn the meanings and the symbols that allow them to exercise their distinctively human capacity for thought.
- Meanings and symbols allow people to carry on distinctively human action and interaction.
- People are able to modify or alter the meanings and symbols that they use in action and interaction on the basis of their interpretation of the situation.

- People are able to make these modifications and alternations because, in part, of their ability to interact with themselves, which allows them to examine possible courses of action, assess their relative advantages and disadvantages, and then choose one.
- The intertwined patterns of action and interaction make up groups and societies (p. 218).

It is important to note that the existence of symbols, even realizing the divergent means, establish a jumping off point for future shared stories. The ideas that Symbolic Interactionism is based upon proposed that the parties are not locked into a class struggled and can, with reflection, alter social constructions (Miller 1973).

Systems Theory

During the 1960s Ludwig von Bertalanffy (1969) published a book titled General Systems Theory where he laid out his comprehensive systems theory. The ideas of the limitations of mathematical models to deal with systems and the challenge of cultural relativity are presented within his work. During the same time frame, Walter Buckley adapted the work of Mead, one of the primary Symbolic Interactionism thinkers, and focused on interaction and feedback leading to systems theory (Ritzer & Goodman, 2004).

Niklas Luhmann worked extensively through the next few decades to champion systems theory within the social sciences building on the work of Buckley and Richard Ball thereby expanding a theory that had originally started out with the hard sciences. There is a distinct connection between Systems Theory and Symbolic Interactionism.

Ritzer and Goodman (2004) pointed out that, "there are a number of rather striking similarities between systems theory and the dialectical approach" (p. 183).

Systems Theory takes a macro level perspective that centers on the system in its entirety and the interactions that occur within that framework. This theory is particularly relevant to the many linked dynamics within a watershed. Additionally, Systems Theory has the potential to be impactful in the consideration of community-based environmental management for a myriad of other reasons including the theory's ability to be scalable, relational, integrative, dynamic, and focus on a network of information and communication (Ritzer & Goodman, 2004). Within the environmental conflict literature, Feurt (2007) points to Systems Theory as a way that cultural models, stakeholders, and group learning can be used in environmental management. Likewise, Reed, Fraser, and Dougill (2006) connect adaptive learning to systems theory in environmental management.

Among the various Systems Theory thinkers there appears to be some disparity between their perspectives of open and closed systems. While Bertalanffy (1969) emphasizes that society is an open system, Luhmann describes society as an 'autopoietic system' that is self-generating, self organizing and closed (Ritzer & Goodman, 2004).

Systems Theory is helpful to conflict resolution, and specifically to the analysis of the local environmental management, because of its focus on context, interdependence and patterning (Wilmot & Hocker, 2011). However, a challenge within Systems Theory from a conflict resolution perspective is that, in spite of its ability to effectively consider the whole as greater than the parts, Ritzer and Goodman (2004) propose that "a

commonly shared perspective can never be achieved" (p. 196). Shared understanding with at least the potential of a shared perspective is a desired goal of conflict management and resolution.

Research Questions

The purpose of this research is to understand the community's perception of the social, environmental, and economic issues surrounding the Rookery Bay Estuary. Building on the existing literature and theoretical framework, this research is directed by three specific questions. To use as a starting point for the qualitative research (Padgett, 1998), the following central question is used to direct the study:

RQ1: What are the points of shared value of the community facing environmental management issues?

In addition to the overarching research question, Creswell (2007) suggests the uses of sub-questions to provide additional guidance to the study. The proposed secondary questions are listed as follows:

RQ2: How do the perspectives of the community stakeholders toward social, environmental, and economic issues relate to their local environmental decision-making?

RQ3: What are the attitudes and behaviors toward water?

Each of these questions will be considered in the implementation of the research to generate the platform for future conflict interventions. It is vital for the essence of these questions to be translated into research and practice.

Chapter Conclusion

Throughout the environmental management literature, including the material focused directly on Florida, there is an array of sources that address the importance of shared attitudes and behaviors, shared interests, and a shared understanding. These materials effectively set a baseline for the exploration within the current research of these elements as they relate to the local community of the Rookery Bay area. In addition to the existing literature highlighting the importance of common ground, the current research also stems from and is bounded to a solid theoretical framework that includes Stakeholder Theory, Rational Choice Theory, Symbolic Interaction Theory, and Systems Theory. On this solid foundation of theory and research, the following chapter explains the methodological process that governed the current research.

Chapter 3: Research Method

Methodology

It has been noted that the "use of a recognized approach to research enhances the rigor and sophistication of the research design" (Creswell, 2007, p. 45). To address the water-based conflict scenario a case study methodology was implemented. Creswell's description of this qualitative approach includes multiple sources of data, participants' meanings, interpretive inquiry, theoretical lens, and a holistic account. Each of these concepts effectively ties back to the theoretical underpinnings presented in a previous section.

"After stating a research problem or issue about this topic, the inquirer asks several open-ended research questions, gathers multiple forms of data to answer these questions, and makes sense of the data by grouping information into codes, themes or categories, and larger dimensions" (Creswell, 2007, p. 51). From the emergent data, a narrative will evolve that can be presented by the researcher. This qualitative approach to the research allows for reflexivity on the part of the researcher while respecting the voice of the participant (Cooper & Finley, 2014).

Research Design

Using the case study methods described by Yin (2003) and Stake (1995) the case study was focused and the research was able to pull depth and meaning (Merriam, 1988; Padgett, 2008). This research design provided a research opportunity that allowed a systems-based focus, which viewed the entire case.

The case study is a consideration of an issue within a 'bounded system' (Creswell, 2007). Within this system there is an important interplay between the theory that bolsters evidence and evidence based on theory. Ragin and Becker (1992, p. 225) identify the importance of "casing", (i.e., case study), as one of the key points of intersection between theory and evidence. In this scenario, the assembled case study provided the essential bi-directional linkage between the previously presented theories and the practice delineated in the next section.

The case study approach is varied and has multi-directional impact on research. The case study describes "both the process of inquiry about the case and the product of that inquiry" (Stake, 2008, p. 121). Building on the theoretical undergirding of Symbolic Interactionism, it is in the complex system of the interaction within environment management that the case study will be focused and the research will be able to pull depth and meaning (Merriam, 1988; Padgett, 2008).

Willis (2007) presents case studies as inductive, illuminating, and providing highly descriptive data that is focused on specific, real people and situations. When this material is extended into impactful interventions, the pragmatic focus on shared meaning that carries through from Symbolic Interactionism through the case study research will be particularly beneficial. It is within this cacophony of lived experiences, that a case study is able to blend these various perspectives and stories and draw shared meanings into a shared narrative. Literary narratives are an important part of the process of bringing a case study together (Roberts, 2002).

Creswell's (2007) description of the qualitative approach includes multiple sources of data, participants' meanings, interpretive inquiry, theoretical lens, and a holistic account. Each of these concepts effectively ties back to the theoretical underpinnings presented in the previous section. Creswell continues by laying out the general qualitative research process as follows: "After stating a research problem or issue about this topic, the inquirer asks several open-ended research questions, gathers multiple forms of data to answer these questions, and makes sense of the data by grouping information into codes, themes or categories, and larger dimensions" (p. 51). From this emergent data, a narrative evolved that is presented by the researcher within this dissertation.

Sample. Using a purposive sampling strategy with a focus on the typical case, data was collected from a range of sources (Creswell, 2007). Potential participants were identified who represent various stakeholder groups within the community, drawing upon project advisory group meeting minutes on area stakeholders as well as water managers and water-related decision makers, thus providing a purposive sample in keeping with the research goals of this instrumental case study. The initial design of the study was based on the expectation of 12-15 participants with the total number of participants not to exceed 20. The final study included 15 participants, none of who are members of vulnerable populations. The inclusion criteria required the potential participants to meet the following characteristics:

- 18 years of age or older,
- Live or work in the Rookery Bay watershed area,

- Be able to speak and understand English, and
- Express a willingness to participate.
- The exclusion criteria for the participants are the inverse of the inclusion criteria listed above.

Recruitment. From April through August of 2014, potential participants were called and the researcher described the study and invited them to participate in the study by taking part in an interview. This was segmented into two steps: community stakeholders, participants 1 through 7, who I contacted during April and May and water managers and related decision makers, participants 8 through 15, who were contacted fellow researcher Jorge Rice during June through August. Included in the description of the process was the notification that interviews would be recorded for the purpose of transcription, as well as the voluntary nature of the study. The potential participant was notified that s/he did not have to reveal any information that is sensitive. Additionally, the interview was conducted in a location that afforded protection from eavesdropping. The participants were given the choice of interacting with the interviewer either in person or on the phone. If the face-to-face option was selected, the participant was offered the choice of location including their office, at the RBNERR facility, or in a public location. Nearly all participants selected their office and none selected the RBNERR facility.

If they agreed to participate, the researcher scheduled an interview and explained that they would be asked to complete a consent form prior to the interview. Prior to starting the interview, the researcher provided the consent form, explained the contents, and allowed the participant to take as much time as desired to review the form and ask

any questions. The researcher answered all questions to their satisfaction. Initial resistance was often countered with the offer to provide the interview protocol including the confidentiality agreement. If they decided to participate, the participant and researcher signed two copies of the form, leaving one with the participant and retaining one for the researcher's records. Anyone who agreed to participate in the study signed the consent form prior to the start of the interview. For those who preferred a telephone interview, the consent forms were provided, signed, and returned via mail before the interview took place.

The recruitment process included a range of feedback and responses from potential participants. In addition to the unreturned phone messages and emails to the polite but quick declining of interviews, several potential participants mentioned lack of time as a reason not to proceed. Additionally a number of participants were simply wary of the process. This apprehension appeared to fall within two primary categories. The first was a concern for true confidentiality and the related personal or professional impact. As previously mentioned, when permissible the research protocol and constraints of the IRB were described and had mixed results. The second primary category seemed to relate to a perception that the research did not apply to them. The initial reaction of several of the community stakeholders, including a few that did participate, revolved around the idea that they worked in and around water but perceived limited personal impact on the area's sustainable value or water conservation.

The initial expectation was to conduct 12 -15 interviews with a maximum of twenty, and this expectation was met with a final total of 15 participants. A total of 76

potential participants were contacted which included 25 females and 51 males. The occupations of the potential participants who choose not to participate in the study included teachers, hospital workers, construction managers, boat captains, and minority representatives. Potential study participants who chose not to be included were invited to refer additional potential participants, employing snowball sampling.

Participants. The 15 participants who were willing to be interviewed were equally divided between community stakeholders and water-based decision makers. Overwhelmingly the participants were male and over the age of 30 with the majority 60 or older. The occupations covered a wide range of field that included agriculture, mining, environmental education, community leaders, and a wide range of elected and non-elected government officials. Throughout this presentation a "P" and then a number that corresponds to the chart on the following page is used to identify the participants. The participants were not given pseudonyms in the following sections in order to focus on their role as representative stakeholders. For clarity, it is recommended that Table 1 is marked or printed for quick reference. A brief overview of the participants is provided in Table 1 and a more thorough description is presented in the results section of this material.

Participant #	Age Range	Gender	Occupation	Years in SW Florida
1	30-59	M	Golf course management	14
2	60 or older	M	Farming	21
3	60 or older	M	Community association management	19
4	30-59	M	Conservation education	8
5	30-59	M	Mining & roads	30
6	60 or older	M	Realtor; HOA leader	13
7	30-59	M	Irrigation; landscaping	40
8	60 or older	M	Tourism official	35
9	30-59	M	Land use planner for county	41
10	60 or older	M	Project manager; leadership program volunteer	3.5
11	30-59	M	Environmental specialist in government agency	12
12	60 or older	M	Engineer; member of county planning commission	33

13	60 or older	M	Official for county soil & water conservation district	61
14	60 or older	M	Elected official at local level	16
15	60 or older	F	Elected official at county level	40

Table 1. Participant list (Cooper, Lilyea, and Rice, 2014)

Data Collection

After the case study was designed and participants recruited, the data collection stage of the research was ready to be pursued. Creswell (2007, p. 118) offers a data collection circle to illustrate the elements of the collection process. The included activities are: locating site, gaining access and making rapport, purposefully sampling, collecting data, recording information, resolving field issues, storing data, and then repeating the cycle as necessary.

In addition to using the literature to establish a baseline understanding, a review was conducted of the project advisory group meeting minutes. To add depth and meaning to the academic and gray literature and the formal documentation, semi-structured interviews were conducted to provide richness and depth. These two methods of data collection are described in more detail below.

Participants take part in individual interviews. Once the informed consent process was completed, the participant took part in an interview conducted by the researcher either in person or by telephone. The interview was recorded on a digital recorder if conducted in person and via freeconferencecall.com if conducted via

telephone. The interviews lasted no longer than one hour and included demographic questions that queried profession, gender, age range, and length of time in region (see Appendix B). This study's interview protocol consisted of semi-structured interview questions (See appendix A for a full list of questions). The following four questions are examples of the interview questions that were used to generate data:

- Do you think there is a tension between the economic, environmental, and social aspects of water use? Please explain.
- Do you have any differences in your own attitudes about the economic, versus environmental, versus social aspects of water use? Could you share an example?
- Do you notice any differences in your behaviors related to these different aspects of water use? Could you provide any examples?
- How do you go about dealing with these tensions between economic, environmental, and social aspects of water use?

Each individual interview was a unique experience. In some cases there was a welcoming openness on the part of the participant who was ready to engage. In contrast there was additional rapport building that happened other interviews, particularly during the beginning, as some participants sought to determine if the researcher was truly familiar with the topic and the participant's interaction with water. Among the participants, responses ranged from short direct replies to wandering statements that were loosely related and therefore the requisite interview management varied widely. Invariably a comment or sense that came from the participants, often toward the end of

the interview, was the perception exemplified by a statement from Participant 5: "I think you brought out some more thought on my side." Additionally, the participants mentioned that the interview questions were "tough" (Participant 7), "important" (Participant 4), and "it makes people think" (Participant 1).

The data collection process included digital voice recordings of qualitative interviews. The researcher with the use of headphones transcribed these recordings for analysis. The transcriptions are stored on a password-protected computer and do not include identifying information. The voice recordings are kept in a locked cabinet where they will remain for three years after the completion of the study, at which time they will be deleted. Participants received free passes to the learning center at the Rookery Bay National Estuarine Research Reserve, along with brochures, a RBNERR mug and pen in a Rookery Bay gift bag. All participants received this gift that had a total value of approximately $10. If the interview was conducted in-person, participants received the gift at the time of the interview. If participant preferred a telephone interview, the gift was mailed following the interview.

Review of relevant documents from the Project Advisory Group. Minutes of the Restore the Rookery Bay project advisory group meetings and a project journal kept by the Project Coordinator, Tabitha Stadler, were included as sources of data for the case study. This input from the Project Advisory Group meetings was gathered and reviewed for contextual information relevant to the project. The data collection format aligns with the three principles of data collection presented by Yin (2003): use multiple sources of information; create a case study database; and maintain a chain of evidence. This

formalized collection technique is important realizing the intent to capture a holistic view as well as the embedded complexity of the Rookery Bay estuary case.

Data Analysis

Data analysis followed the standards for qualitative case studies and included memo writing and two cycles of coding (Saldaña, 2013). The first cycle will include elemental coding including descriptive coding and in vivo coding and affective coding including of emotion coding; values coding; and versus coding. (Saldaña, 2013) Pattern matching and explanation building will follow in the second cycle (Yin, 2014).

Affective coding methods explore subjective qualities of the human experience by acknowledging and naming them. Emotion coding labels feelings participants may have experienced related to the research topic. Values coding assesses the research participants' integrated value, attitude, and belief system and is particularly applicable to case studies and the first research question in this study. Versus coding relates to the identification of power, and identifies which individuals, groups, or systems are struggling for such power. This approach applies to situations where possible conflicts or competing goals may exist among research participants (Saldaña, 2013), and is pertinent to the second research question related to water management decision-making.

A desirable technique in case study analysis is pattern matching, in general, and explanation building in particular (Yin, 2014). General pattern matching is a logic that compares patterns found in the case with alternative predictions established prior to beginning the data collection process, increasing internal validity of the research effort. An effort to further analyze collected case study data is the iterative process of

explanation building through the development and refinement of theoretical statements. The process of comparing initial case findings, revising propositions, and further comparing builds case study evidence that lends itself to further analysis and explanation (Yin, 2014). This process will be particularly useful in identifying points of shared meaning, shared understanding, and shared value related to water conservation.

Codebook. To guide the initial steps of the data analysis and provide a structure to the process, a codebook was developed. The codebook included a list and summary description of the five specific coding approaches that were selected - emotion coding, values coding, descriptive coding, versus coding, and in vivo coding (see Table 2: Definitions of Coding Methods). These coding types were drawn from both affective and elemental coding methods (Saldaña, 2013). The affective methods (e.g., emotions coding, values coding, and versus coding) were implemented to gather the subjective aspects of the participant's interaction in the interview and the elemental methods honored the participant's voice both through a summary of their experiences (e.g., descriptive coding) and the use of their actual words (e.g., in vivo coding).

Additionally, the codebook delineated the 13 major codes that emerged from a consideration of concepts within the research questions and a review of the initial data collection (see Table 3: Major Codes). Saldaña (2013) posed that "maintaining this list provides an analytic opportunity to organize and reorganize the codes into major categories and subcategories" (p. 25). The codebook proved to be especially helpful for organization and consistency and was a constant companion during the coding process.

Additionally the codebook and concomitant output from the coding provided a powerful foundation for the entire qualitative research process that followed.

Coding Type	Definition	Source of Definition
Emotion Coding (E)	Emotion codes label the emotions recalled and/or experienced by the participant, or inferred by the researcher about the participant.	Saldaña, 2013, p. 105
Values Coding (V)	Values coding is the application of codes onto qualitative data that reflect a participant's values, attitudes, and beliefs, representing his or her perspectives or worldview.	Saldaña, 2013, p. 110
Descriptive Coding (D)	Descriptive Coding summarizes in a word or short phrase-most often as a noun-the basic topic of a passage of qualitative data. Descriptive codes were used to capture the experiences of the participants.	Saldaña, 2013, p. 88
Versus Coding (VS)	Versus codes identify in dichotomous or binary terms the individual's, group's, social system's, organization's, phenomena, processes, concepts, etc., in direct conflict with each other.	Saldaña, 2013, p. 115
In Vivo Coding (quote marks)	In vivo codes are codes consisting of a word or short phrase from the actual language found in the qualitative data record.	Saldaña, 2013, p. 91

Table 2. Coding types (Cooper et al., 2014)

First Cycle Coding. The first cycle of coding implemented the five coding types listed in Table 2. Emotions coding was used to signify when the participants expressed feelings. The use of this coding approach added an important qualitative depth to this study. Because simultaneous coding was used in this study, it was possible to use the emotion code along with another code. This allowed the researcher to differentiate between a factual or descriptive comment and an emotionally charged statement that may have otherwise been indistinguishable.

Because attitudes and beliefs were an integral part of this study values coding was a key tool to identify these concepts expressed by the participants. Versus coding was used to identify the participant's contrasting or polarizing of concepts and positions. Descriptive coding was used to summarize the participant's comments and experience and often provided an overview of the participant's perspective.

In vivo coding was a slightly different yet critical approach to the data. This coding type allowed the participant's exact words to be honored and highlighted. During the later phase of theme development many of the exemplars came directly from the wording that was identified from the in vivo coding.

The five coding types and the major codes were applied then to the transcripts. Using the one- or two-letter identifiers (See Table 3) and the concomitant major themes, the selected text was highlighted and a comment was added listing the applicable code, theme, and explanation (e.g., "V: TENSION: Trade off between importance of preserve and economic costs"). Each fully coded transcript was saved in a separate file from the related original transcript and they provided the foundation for the next cycle of coding.

Major Codes
1. Attitudes
2. Beliefs
3. Behaviors
4. Decisions
5. Personal/Professional
6. Collaboration
7. Intervention
8. Education
9. Threats
10. Shared Value
11. Tension
12. Conflict
13. Conflict Management

Table 3. Major codes

Explanation of major codes. The section that follows is a delineation of the major codes with their accompanying explanations including the connotations of the terms to reflect how they were implemented to categorize the information from the transcripts of the participants' interviews.

1. ***Attitudes*** – when a comment was made in the interview that reflected a perception, inclination, or an orientation toward someone, something, or some

position, the "attitude" code was applied. This classification was selected for both positive and negative attitudes that were expressed by the participants. Because stakeholders' perception was a central idea of this study this was an essential code for inclusion. An example of the attitude code by participant 8 was, "Water management I think needs to be sensitive to two sides of the equation. One is certainly preservation, is very important in making sure that water flow, sheet flow is managed. But on the other side water management especially water management districts have a responsibility to the citizens and to the visitors alike, that instead of shutting off areas and not allowing people to access certain areas in the name of management that controlled access is certainly important."

2. ***Beliefs*** – similar to the attitude classification, the belief codes was implemented when a particularly strong attitude was expressed or the comment represented an underlying tenant for the participant. Although it was a less utilized category, this group of codes allowed for notable information to emerge in the research. An example of the belief code from participant 1 was, "Freshwater is not going to last forever, so yeah, there would be more for our future as human beings whether it is in this area in Florida or on the planet."
3. ***Behaviors*** – when actions were described, the behavior code was used to highlight the comment. This code primarily served to indication the participants' behavior, it was also applied to the behavior of others if specific actions were mentioned. This category helped to address the dynamic between the attitudes and behaviors. An example of the behavior code from participant 4 was, "Well,

personally we use water general household water use and we have a son and we talk to him and make sure he knows to shut the faucets off and why not just do it, but why that's important."

4. ***Decisions*** – this major code was applied when the participants raised a choice or conundrum that they had faced. This category also included decision-making strategies or processes that were designed or experienced by participants. The material that was coded in this group elevated the participants' processes and addressed the tensions that they experienced. An example of the decision code from participant 7 was, "One of the problems the area is facing is that local contractors lack environmental knowledge and make poor decisions when doing simple irrigation practices. Consumers should realize that initial larger investments on irrigation systems are worthwhile since it helps the environment, and saves the consumer money."
5. ***Personal/Professional*** – in an attempt to understand the consistency in the behaviors throughout the participant's life, a code was used to highlight actions, events, or perceptions that specifically were connected to personal or professional context. Throughout the coding process this code often was used in conjunction with other codes such as attitudes or behaviors. An example of the personal/professional code from participant 1 was, "I think that conservation and things like that on the golf course business, the golf course side of things, the industry very quickly makes its way into your personal life."

6. ***Collaboration*** – when joint activity was mentioned by participants, whether or not they were directly involved, the collaboration code was used. These statements in the category included a description of active participation as well as reference to cooperative strategies or frameworks. An example of the collaboration code from participant 11 was, "I Think collaboration, education is all kind of tied together. Like really to have permanent lasting sustainable changes that we need all of those need to be addressed and I don't know if that's going to be possible."
7. ***Intervention*** – whether the action, or potential action, was on the part of the government or an individual, any input by the participants that pointed toward influencing actions or outcomes was marked with this code. This category also included comments related to rules and enforcement of rules. An example of the intervention code from participant 5 was, "We've got mitigation tables and regulations that we have to meet. We know that we are going to have to do that and everyone of those regulations gets more intense each year as it goes on."
8. ***Education*** – to collect the statements that addressed knowledge sharing or the learning process, the education code was implemented. Whether it was a desire for additional information transfer or past experience, the category helped to identify the learning, or need for learning, that was occurring in the community. An example of the education code from participant 13 was, "We just don't teach enough in our in our academic curriculum on the significance of living creatures and water. Most of the kids today will tell you that breakfast comes from Publix, and most of the kids today will tell you that water comes out of the spigot. So the

knowledge that young people, middle age adults, and seniors have is very limited."

9. ***Threats*** – when participants mentioned their primary concerns, worries, or fears, the code entitled threats was used to draw attention to these items. The items in this category included physical things such as chemicals or invasive species; long-term activities such as red tide or ocean rise; and concepts such as greed. An example of the threats code from participant 10 was, "No question that the biggest threat is the development of man made facilities whether they are highways, parking lots, buildings, that take away land that previously was used to drain and filter the storm water down here."
10. ***Shared Value*** – combined points of agreement and mutual benefit that participants identified were coded with the identifier of shared value. This included comments about items that were desirable by several stakeholders. As a core tenant of this research it was beneficial to clearly mark the statements that reflected this concept. An example of the shared value code from participant 2 was, "Fortunately, the good decisions for us is a good decision for people. To use less water benefits us and it benefits people as well. To discharge the water, again, that water if you pump it out you have to get it back, you have to replace it somehow. So if we can store the water and let it seep back in the property that's to our benefit as well as them so we really don't have a lot of conflicts with the two philosophies. What's good for the people is good for the farm as well."

11. ***Tensions*** – in contrast to shared value, the tensions code was used to point to the disagreements or differences that occurred specifically between the stakeholders. This classification included a range of topics and levels of emphasis as well as issues that may not necessarily be considered a full-fledged conflict. An example of the collaboration code from participant 9 was, "People want the water for residential use or commercial or industrial uses and of course agriculture needs water and sometimes we are all going to the same water source and we want the same water and we have a distinct wet and dry season here. So during the dry season we are all potentially tapping into the same water supply."
12. ***Conflict*** – similar to tensions, the conflict code highlighted incompatibilities or disputes, however the items that where classified with the conflict code were more general dissension that were not directed to specific stakeholder groups. These manifest disagreements ranged from interpersonal to large scale. An example of the conflict code from participant 14 was, "Oh absolutely there is always conflict. Everybody wants everything until they have to pay for it so there is always the conflict and again what you have to do is, have to demonstrate why, at least on a long-term basis, that these are good economic decisions. You know I've come from the private sector so I understand risk/reward very clearly and that's what we need to do."
13. ***Conflict Management*** – The conflict management code focused on the participants' descriptions of the way that tensions and conflicts were addressed. This was a smaller category reflecting the reality of the participants' comments

that were weighted far more toward interventions than conflict management. An example of the conflict management code from participant 10 was, "The only way to handle then is to incorporate into a new organization both the county and the city where it does not become a zero sum game the way they look at it and the only way to do that is to make them a common group with an outside objective and that's what we are looking to do. So that there is not a sense of conflict or you know that what I give up you get or what you get I have to give up for is the only way to do it politically."

Second Cycle Coding. When a transcript was fully coded and the first cycle coding was completed for a specific participant, the focused turned to the second cycle of coding. Pattern coding and explanation building were implemented for this coding cycle. Each participant's data remained separate during the first and second cycles of coding. To establish structure to identify emergent patterns, a discrete yet related "category codes" document was created for each participant for the categorization process. The data from the first coding cycle that was highlighted in the transcript and the adjoining comment was copied into the category codes document and categorized by major codes (see Table 3) and each of the major codes were further segmented by coding type. For example, the section of the categorization document entitled "Threats" included the subsections of the five coding entries such as "Emotions", "Values", etc.

After the categorization process was complete, a content summary was written for each major code section of each of the category codes documents. These short narratives that summarized the entries with in each category were a helpful element in the

explanation building process as the researcher looked for emergent themes. Additionally, the content summaries were beneficial when generating the participant summaries.

Development of Themes. During the previous stage of the data analysis process the participant's interview transcripts were viewed individually. Although there was an iterative element within the semi-structured interviews where the initial data analysis informed the latter interviews, during the final stage of the data analysis the focus of the data transitioned to an aggregate view and a consideration of common themes.

The identification of themes included the review of the initial research questions. This involved comparing and contrasting the participant's expressed attitudes and shared experiences to the concepts expressed within the research questions. Additionally a review and reflection of the raw transcripts as well as the coded and categorized data allowed for the emergence of other common themes. This included the consideration of unexpected perspectives, opposing inputs, or seeming gaps feedback provided. There were not a predetermined number of statements from participants that were necessary to comprise a theme. In practice, a theme emerged when three to five statements coalesced around a common idea. There were times that a theme was split into more specific ideas because of the volume of similar statements; in other occurrences, what appeared to be a theme was merely a singular statement that resonated with the researcher but was not supported by additional participant comments.

Using this qualitative research-based discovery orientation, the space was created for themes to truly emerge. As the themes began to become more apparent, the direction changed toward a search for representational quotes that expressed the essence of the

theme. In addition to giving voice to the participants, these exemplars were critical to honing the themes. For example, specific themes were reworded, separated, or combined when the core quotes were listed and evaluated. Throughout the development of shared themes, this structured data analysis process was effective in drawing the participants' perspectives together.

Chapter Conclusion

Using a formal qualitative research methodology, the current research utilizes a case study approach that included a purposive sampling strategy. The interview data, from a range of community stakeholders and water-based decision makers, was transcribed, coded, and categorized and then emergent themes were selected from the aggregated material. Throughout this process the participants' voices remained at the core of the process. In the next chapter the participants are described and the themes are presented.

Chapter 4: Results

The results of the current research include summary descriptions of the participants and the delineation and explanations of the emergent themes. Before the themes are presented it is beneficial to understand the backgrounds and perspectives of each of the participants in order to give context and substance to the statements included with each theme. These statements embedded in the themes give a direct line to the participants and honor their voices, which are central to the results of the research study.

Participant Summaries

A vital component of the outcome of the research is an understanding of the participants. As their voices are honored, especially in the themes section, the following participant summaries provide general background of the insights and perspectives of the participants. Although each of the participants have economic, social, and environmental interests, the participant summaries are grouped by their primary focus or area of emphasis in the categories of economy, society, and environment based on their interview feedback. Additionally, in keeping with the concepts embedded within qualitative research the participant summaries will add a layer of depth and richness to themes and findings.

Economy

Participant 1 (P1). P1 works in the golf course industry and manages the turf grass and surrounding landscaping. He is between 30 and 50 years old and has lived in southwest Florida for the past 14 years. P1 enjoys the local weather and environmental complexity of the area and both he and his staff regularly participate in water-based

recreation. He finds his professional space especially interesting because of the freshwater-saltwater blend in both flora and fauna. Additionally, P1 mentioned that the conservation behaviors from the golf course make an impact on personal behaviors and home water testing.

He believes that all actions have a way of ending up in the water and freshwater is not going to last forever. Additionally, participant believes that one should "treat the environment on the property the same as you would your other assets." The quality and cleanliness of the freshwater is concern as well as the proper blend of freshwater and saltwater. The participant sees himself as a conservationist, not an environmentalist. Participant's personal ideals match well with the area and they are frustrated with other's lack of concern about water quality.

P1 posed that the golf course industry focuses on the care of the environment, but still is about a game within that environmental space. In spite of the environmental efforts, the golf course industry is still trying to recover from its long-standing poor environmental image. P1 suggested that some conflicts, such as the one surrounding the golf industry, have ongoing history and an anticipated pattern. P1 does extensive scientific data collection and goes beyond regulatory requirements. Within the golf course community, environmental factors, including both voluntary and regulated mandatory water testing, have become part of the decision process. Using a range of experience, field examination, scientific equipment, multiple viewpoints, and near-term usage, water usage decisions are made. The participant feels that they are more conscientious than the government regulators. The regulatory requirements and decisions

seem to focus on a limited issues such as chlorides. The golf course is adjacent to the estuary and testing is done to monitor the potential threat. Contaminants and pollutants, including metals and chemicals, drain into the golf course area and concentrate near a single point of exit from much of east Naples into the Rookery Bay area.

P1 believes that an awareness of environmental surroundings impacts collaborative decisions, however he pointed to a lack of openness and collaboration and used the example of the lack of sharing scientific testing metrics. He has taken the initiative to begin more self-intervention to monitor the water quality more.

P1 suggested that transient population, congestion, lack of community, inconsistency in enforcement and unwillingness to follow regulations all have negative impacts and create tension. His perspective is that any work that needs to be done can be done while considering all elements. In fact, it can usually be done better when all elements are considered and it becomes a sense of pride. Social conscientiousness, environmental awareness, and financial resources are all important to success.

Participant 2 (P2). P2 is a commercial farm manager who is 60 or older and has lived in southwest Florida for 21 years. He likes the area and recognizes it as an environmentally sensitive area. Although many changes have already been made, he states that we have to make the most with what we have. P2 mentioned his family's multi-generational farming history and suggests that both his personal and professional behavior tie back to a farm-based ethic. His personal behavior is based on conservation and suggested that farmers have always been about reuse and conservation. In addition to allowing water to flow through the property for downstream use, he is a major proponent

and advocate for low volume water use. He implements drip irrigation using water from the aquifer to water crops and grow food.

Focusing on what is good for the crops by using a decision framework and an extensive technology system, P2 implements a system established by University of Florida's Institute of Food and Agricultural Sciences that allows for constant adjustments based on the continually changing environment. These water use practices also include slow fertigation, water retention, and extensive technology-based testing/monitoring. Water management practices include water quality testing, saltwater intrusion management, and participation in multiple water related studies. P2 feels like the farmer is not wanted in the area and is wary of reactionary decision-making. He believes that agriculture should be represented in large-scale decisions so the tendency for reactionary decisions can be mitigated and the embedded trade-offs can be openly addressed.

P2 proposed that there is always a trade-off and money is a motivator to limit unwanted actions and promoted desirable actions. He pointed to the cost of fuel that affects behavior and limits water use and how water restrictions are becoming the norm. In contrast he suggested that environmentally conscious actions often take financial resources to implement and specifically mentioned Southwest Florida Water Management District's (SWFWMD) cost sharing programs that are effective at providing resources to pay for environmentally positive actions and purchases. P2 stated that fighting nature is expensive and that good economic decisions can be good decisions for everyone. To illustrate this idea, P2 explained that he uses his environmental tendencies to recharge the ground for better financial and social impact.

He is concerned about the population increase, both numbers and diversity of those who don't share the same ideals, and the related traffic congestion, however he recognizes that everybody is "in this together, and we all have to do the best we can." A parallel concern for P2 is the embedded bias throughout the variety of media and information sources that are available. He would like more balanced presentations. The participant believes that conflict comes from misinformation, misunderstanding, and a high profile. Additionally, he mentioned that, with limited information, it is easy to justify your own actions and blame others. The participant believes that following regulations and maintaining good relationships avoids most conflicts. He points to the fact that water touches everything and stated that estuaries are important and it is not in anybody's interest if they go away.

Participant 3 (P3). P3 is employed by a community association in Marco Island and has been active on the related advisory board for over a decade. He is 60 or older and has lived in southwest Florida for 19 years. He thinks that Marco Island is the nicest place to live and particularly enjoys the weather and the beach. P3 has recently become concerned about the local expansion including the potential addition of more golf courses and the proposed development of a 2,500-unit subdivision in the area. He points to the forced migration of wildlife to new, often inhabited, areas.

Currently P3 receives most of his water-related information from the Internet or local newspapers, however he feels that there should be additional information on a city website to inform owners on water-related issues. He thinks that the community as a

whole should have a better understanding of water-related concerns and would also like to see more education on water conservation and the water features of the local area.

Meetings at the city council explained to members of the community that water comes from the North to the South and if the North properly treated the water the City burden would be less since it would need less treatment.

For example, P3 thinks that residents should be creative with their landscaping techniques so that they become more eco-friendly and maximize their water use, which includes limiting excess water use and capturing storm water for reuse as well as exploring other types of water storage. He contrasted the seasonal rains with the off-season of the population that complicates the water supply and demand challenge.

The increasing water rates added a layer of conflict between homeowners and those who live in or manage condominiums. P3's perception is that there is a common assumption that because wealthy people inhabit high rises, that they should pay higher water rates. He has found that collaboration and communication are important to navigating these tensions. The participant believes that Marco Island residents should come together as a family to deal with water related issues. He feels that the process needs to be fair even if cost goes up which will help keep the water clean and maintain area's water facilities.

Participant 5 (P5). P5 is a 30-59 year old male who works in mining and road building and over 650 acres within the Rookery Bay watershed including 230 acres that are set aside as a preserve. Although frustrated by the inconsistency in regulatory enforcement, he likes living in the area and has chosen to live in a pristine Cyprus

swamp. P5 came from Wisconsin farmland and in line with the farm ethic that he was taught as a child, he practices water conservation in his personal life by using rain barrels, not over implementing drainage, attempts to eliminate exotic plants, and generally reducing usage. Some of these behaviors are based on costs.

P5 views water personally as a space where he regularly engages in a range of recreation activities and professionally as a tool and resource to be managed. He doesn't think that he impacts the water, professionally or personally, because what he takes out goes right back in. For example, his company recirculates several million gallons of water a day for use in mining to wash aggregate rock, wash trucks, water roads to keep the dust down, and other mining efforts.

The participant recognizes and is concerned about the tension between the wildness and the ongoing development. He appreciates the benefits of the swamp, the filtration of the estuaries, and believes clean water is important, however he feels that people often make too big of a deal about water issues. He believes that nature will adapt to changes in the environment and suggests that the future of water is determined by geology. Although he believes that there is an abundance of water P5 believes we should still conserve anyway.

P5 believes that information will help with future decisions, however the news and other information providers all have a bias. He points to a lot of misinformation and a lack of understanding of the existing water management practices. P5 suggests projects that are limited in scope and could be more effective if the scope of collaboration was

much broader. He has found that the results of collaboration include both learning and sharing your perspective.

P5 suggests that there is a tradeoff between the need for roads and development and what some would consider a dirty industry. He adds that mining involves the destructive process of drilling thirty feet down and using a blast charge. Another trade-off P5 mentioned includes the expense of attempting to take the environmentally conscious actions. He proposed that this issue is magnified when regulations and regulators allow environmentally unfriendly actions and he expressed that he feels there are a lot of regulations and they are always growing. He added that paper-based plans don't always match reality that they end up restricting good things and focusing on inconsequential things. Many issues, P5 believes, such as exotic animals and foliage; freshwater dumping and saltwater intrusion; overfishing; and sewage and chemicals, come from poor land management decisions. In contrast he pointed to the positive impact of the weir system installation.

The actions required by the regulations are expensive and the public may not understand the impact/tradeoff. Currently water management accounts for a large portion of the cost of building roads. He noted that regulations are a significant constraint and they determine the actions of what you are going to do or not do in spite of what you would like to do. However, in spite of his frustration with the water use regulations, he has found a way to use water management as a selling point. P5 stated that it seems like it is a continuous fight where he finds himself simultaneously agreeing with and fighting with the interventions.

Participant 6 (P6). P6 is a realtor and HOA president who is 60 or older. He has lived in southwest Florida for thirteen years and has vacationed in the area for many years prior to that time. P6 mentioned that he used to think that "water was life", but has realized that too much freshwater can also be a problem. Before he moved to the area, he had already extensively fished throughout the surrounding area and continues to fish several times a week (including Rookery Bay). He did participate in an oyster farming initiative. The overfishing behavior of fishermen has changed the amount of fish available. He noted a decline in fish in the Rookery Bay over the years. Another major concern identified by P5 is the population increase and the continued pace of development that effects water.

P6 identified himself as a church-going Christian who believes in the Ten Commandments, tries to do what is right and follow the twelve points of the Boy Scout law. Additionally, he is a self-described farm boy from Illinois and he currently lives directly on a saltwater canal and boats and fishes regularly on the saltwater. While nearly everyone in the community has a boat, most people do not wash their own cars and many do not live in the area full time. P6 pointed out that money isn't an issue for people in his community and most people in the community aren't overly concerned with the details of their money because someone else pays their bills for them, but they are worried about how the canals look. He stated that it costs a lot of money to live in his community and the residents realize that money needs to be spent and risks need to be taken for the benefit of the environment.

Along with receiving information online, P6 often uses first hand experience. He is satisfied with the information he is receiving and does not want raw data. In turn, P6 actively shares information throughout his community via email and asks for feedback. The HOA board also regularly meets and solicits feedback. Additionally P6 is a member of an informal group of other community leaders that regularly hears from government officials. He feels that this is important because "understanding reasons for interventions does not mean that you like it, but it does help you know what to expect and make decisions for the future". The participant's efforts toward collaboration are primarily focused on information sharing.

P6 doesn't perceive freshwater as a current a political issue like red tide, the dead zone, and the Everglades. He does feel that the local government manages their water better than most including the use of reclaimed water, retention ponds, ARS wells, and multiple other ongoing upstream initiatives. He believes that the homeowner's responsibility is to pay their taxes and let the government officials figure out the water issues. He feels that existing regulations make an impact, however he thinks intervention decisions should be more tailored to the specific area or situation. He specifically pointed to the extreme cost of shoreline runoff containment in relation to the environmental benefit. Although he doesn't believe that money is a significant point of tension for those in his HOA community, he did mention the tension between the exorbitant water bill and the new sod/grass as well as the tension between the ability of a farmer to make money and the residue in the runoff that affect the downstream watershed.

Participant 7 (P7). The participant works in the irrigation industry and is 30-59 years of age. He has lived in the area for about forty years. The participant loves the area where he lives, as well as his profession, because he has a deep love for the environment. P7 has made the investment to add better irrigation system to his personal property and uses rock to prolong the longevity of his landscape.

He identified the longevity of fresh water as a significant important issue because it is necessary for survival and added that water helps to put other resources in perspective such as electricity. P7 also highlighted the environmental diversity of the area and the many recreational activities that are available. His work spans all of Collier County and he enjoys fishing throughout the area especially in saltwater.

In addition to the challenges of from the growing population and urbanization, P4 suggested a need for more water-related boundaries such as additional regulations and preventative actions. He would like the water management officials to take a more active role, using collaborative community input, and put additional measures in place well before any hazards occur that would prompt water restrictions. P7 would also like to see improved drainage systems in the area and he posed that stricter regulations would lead to better irrigation systems.

The current population should plan for the future to conserve water and natural resources for future generations. However, he believes that unfortunately short-term goals tend to be more important to people, rather than long-term goals. To combat this thinking, P7 would like to see more education and incentives for the residents to

implement more cost effect and environmentally friendly irrigation as well as education and licensing requirements for irrigation and landscape contractors.

P7 suggested that of the biggest threats is the lack of knowledge of the area and identified the importance of education so that people recognize the importance of water conservation. The participant gets most water related information on water issues from local publications, but he feels that there has to be additional methods on behalf of the public sector so that the public receives information on water related issues. P7 mentioned that most of information addressed in the media deals with current problems and challenges and no prevention education is ever provided.

Society

Participant 8 (P8). P8 is a tourism official in Collier County and is 60 or older. He has lived in southwest Florida for 35 years. The participant thoroughly enjoys the area and is an active boater. He believes that community members have a responsibility to manage water and suggested that when one does not respect the environment negative effects take place. P8 also feels that the estuaries need to be improved and, most importantly, be preserved. Additionally, people need to understand that the eco system is fragile and that the man-made runoffs need to be taken care off to keep estuaries in good shape.

The participant highlighted that achieving these conservation goals is through working together and a way to collaborate is to educate members of different groups to create positive discussion. He added that collaboration also creates economic incentives because it exposes information to members of the community. However, he identified

the differing of points of view between the environmental groups and the Water Management District, which creates opposition to whatever the Water Management District wants to do and forces them to remain sensitive to both preservation and the availability of desired areas that must remain open to allow access to potential tourist visitors. It is also important to be aware of salt-water intrusion having an effect on fresh water reservoirs.

P8 mentioned that most of the tourists are attracted to a clean eco system. If water is not pristine there can be a potential loss of tourism. The city of Naples has taken additional steps to create artificial reefs to attract fish and tourist to the area. He explained that, when problems occur, that the tourism industry has to provide information to tourist and intervention is necessary to avoid negative future publicity. The participant emphasized that there is an economic incentive for residents and tourism to keep area pristine. It will drive further economical incentives, and will keep tourism wanting to come back to area. P8 also stated that restoration is needed so that tourism is not affected. Both the water management council and environmental groups must work together to avoid bad publicity and promote the area.

Participant 10 (P10). P10 is a retiree and civic volunteer who is 60 or older and has lived in southwest Florida for 3.5 years. He has a wide background ranging from military officer, lobbyist, and business owner in the energy industry.

The participant views water as a serious and overwhelming problem. The existence and cleanliness of water is key along with the existence and health of the glades. He believes that community members are aware of the problem however funding

and personal responsibility are ongoing issues. Additionally P10 feels that government should provide boundaries for water use and community members need to take responsibility within that space. The participant believes that the rules have to be reasonable and people need to take (or be made to take) responsibility for their actions such as fertilizer, chemical, and construction runoff. This would include better systems, rules, enforcement, and positive actions to better balance the environmental pressures to both correct poor past decisions and deal with the demands of growth.

The participant is actively involved in a leadership program to teach retirees about the challenges and institutions of the area to help them respond to those needs and he believes that public and private resources are necessary to address the challenges of urbanization. Government, business, and environmental groups have successfully worked together to design and prioritize projects however these projects are limited by funding.

P10 suggested that potentially the largest conflict is the tension between coastal residents and upstream agricultural interests and other inland residents and the related source of monies needed to implement restoration projects. He believes that citizens are aware of the water issues but population increases are quickly increasing availability challenges including both the variability and total amount of the supply. Furthermore, P10 feels that seasonal weather patterns exacerbate the problem as well as the supply limitation caused by development of 50-60% of the local glades (e.g., highways, parking lots, buildings, etc.) thereby limiting filtration capability. Another significant point of conflict perceived by the participant is the policy fight between different levels of government within the watershed. Additionally he identified an array of tensions that

include local pressures such as the population increase, especially from the Latino and retiree demographics, and free riders.

The participant believes that community members with similar cultural backgrounds are able to better deal with difficult government policy issues. Additionally, background information for decision-making is provided by a small group of scientists who have a solid understanding of what needs to be done. He adds that established boundaries need to be beneficial to all stakeholders including the environment. Solutions can't be a zero sum game. P10 stated that "a common group with an outside objective" can eliminate the sense of conflict and provide solutions.

Participant 12 (P12). P12 is a retired engineer who current serves on a county planning commission. He is 60 or older and has lived in southwest Florida for 33 years. He lives on a deep lake that is used for irrigation and likes to kayak in both fresh and saltwater. He also raises an experimental Cyprus tree near his home. His engineering background including water management, hydrology, hydraulics, and water flow significantly affects how he views and responds to the world around him, which includes his participation on volunteer boards and public meetings.

The participant believes everything depends on water. Additionally he feels that engineers have the solutions and believes common sense would alleviate the problems. He points to differences of perspectives of the level of conservation necessary, what constitutes wildness, and what constitutes urban. He believes people in the area are careful with water use primarily because they want to limit their costs.

The participant listed several threats including freshwater pollution, nutrients, and powerboats and jet skis. He specifically mentioned the challenge to fish when freshwater flows into the estuary too quickly and does not properly mix with the saltwater. He als pointed to the tension between agriculture, golf courses, residents, and the environment. He points to the need for greater interaction between RBNERR and the upstream stakeholders. Additionally, the P12 mentions the tensions between the government and citizens who are suspicious. The participant would also like to see more information on Rookery Bay available to the general public via electronic media.

P12 noted the importance of openness and the inclusion all stakeholders, including agriculture, in water discussions and decisions. He specifically pointed to the open public meetings but expressed concern about the monologues that occur. He hopes that these meetings will lead to good decisions but suggests that they don't always.

The participant focused heavily on the permitting system, the power of permits, and how difficult the permits can be to receive. He also mentioned the importance of digging deep lakes for water storage as well as the dangers of allowing mitigation in a different basin. The participant has experienced water-related conflict around water drainage and digging deep lakes for water storage. P12 pointed to a lack of understanding as a source of conflict. He suggests that you can reason with some and not with others, he believes that the best conflict management tool is common sense.

Participant 13 (P13). P13 works with the county soil and water conservation district. He is 60 or older and has lived in southwest Florida for 61 years. He kayaks in fresh and saltwater, irrigates from a retention pond, and has a wide range of native plants

that are raised naturally. He pointed to the fact that conservation is part of every religion and belief system. Those that don't respect the local natural environment frustrate the participant and he deals with values conflicts by boycotting the companies involved.

Professionally P13 is engaged in storm water management and feels that recycled water is a key element to water management. He believes that water equals energy and energy can be expensive. The participant suggested that food growth, transportation improvements, energy and many other things all equate to water use, which because of the limited supply adds pressure. The amount of water is what the participant suggested is the most important and he thinks the focus should be on returning the natural environment back to its natural state as reasonably as possible so that it can achieve balance and be allowed to work effectively as it was designed.

Cost is often used by P13 to determine water use. He basis his decisions on personal observation to determine water conditions and is suspicious of biased input although he does support additional technology in decision-making. The participant points to narrow input from environmentalists and engineers and suggests a systems-based ecological perspective is important for decisions.

Another concern for P13 is enforcement of regulations, whereas he feels the agencies and managers have done an effective job at establishing rules – possibly even too many rules. When discussing intervention, the participant mentioned the importance of focusing on restoration over fines as well as the ability of engineers to provide a solution to a problem that may not consider the entire ecosystem. For example, he pointed to the open issues of linking retention ponds and mitigation locales.

The need for information and innovation to alleviate tensions was also mentioned by the participant. He mentioned his personal behaviors to control and limit water use and pointed to the importance of matching attitudes and behaviors. P13 also specifically mentioned that the efficient water use of the agricultural stakeholder in their behaviors as well as the importance of community members to observe the proper functioning of water management devices and report related failures.

The participant feels that the community input process in the community and access to decision makers is excellent, however P13 feels that there is a lack of education at all age levels relating to the local environment and what it means to live here. He cautioned against listening to experts and emphasized the importance of including the residents who care about preserving things. Additionally he pointed to the lack of experience of many policy-based environmentalists. P13 pointed toward the use of collaboration in water use and stakeholders sharing their water use expertise. The participant mentioned lack of knowledge and self-absorption as threats to the estuaries. Additionally, threats need to be addressed throughout the watershed to remedy the challenges of the estuary. He also mentioned the importance of educating the population upstream throughout the entire watershed because this lack of education is the basis for many conflicts.

P13 suggested that conflict is natural and pointed to the tension that exists within the ecosystem where everything within the estuary wants to eat something. The participant also addressed people's strong preference for convenience and identified

people's aversion to change and the importance of understanding. P13 believes that social convenience is opposed to economic and environmental efficiency.

Participant 14 (P14). P14 is a local-level elected official who is 60 or older and has lived in southwest Florida for 16 years. The participant does some water-based recreation. He makes personal decisions based on limiting water use and is very consistent about water conservation and feels that his attitudes and behaviors are consistent. The participant serves on multiple boards and is knowledgeable and active in water conservation. He has taken many personal actions to work with and around water and would like to see a lot more use of non-potable water when possible. The participant identified several threats to the local waterways such as man-made activities, fertilizer, copper, freshwater pollution, nutrients, saltwater intrusion, and mangrove destruction. P14 thinks that water is essential and believes that we need to continue to improve water quality, storm water management, and the natural environment.

He recognizes that there is an economic and scientific element of decision-making and an economic connection to water conservation. Similarly, the participant identified tension between economic and environmental interests and mentioned the importance of incentive-based interventions with a focus on dealing with issues at their source. The social tension was also highlighted when P6 identified that people come and stay because of the environment.

P14 pointed to the strong rules that exist and suggested that water management enforcement is aggressive in the city and not as strong in the county. Additionally, the participant described the water diversion and water storage (e.g., ASR wells) initiatives.

As part of a continued communication strategy, the participant reiterated several times that education is the best approach for managing conflict and especially believes there is a need to focus on education for fertilization and storm water best practices. He also pointed to the necessity of education to help citizens understand the concept of risk and reward related to water conservation.

Participant 15 (P15). P15 is a county-level elected official female who is 60 or older and has lived in southwest Florida for forty years. She values clean, fresh water and believes water conservation is important. The participant is involved in several water conservation organizations and she perceives her own water-related education has occurred through conservation involvement. As a result she believes her personal and professional attitudes are consistent. P15's list of local threats includes chemicals from fertilizers, agriculture, and boating. She believes that communication is the key to conservation education and sees a void in the local water-based environmental outreach and does not believe that the potential for community engagement and education is being fulfilled.

P15 recognizes tension between stakeholders who are focused on money versus those who are focused on the environment. However, she does believe that guided development and responsible conservation can coexist. Her perception is that conflict is often property related especially relating to development, which includes people, and their lawyers, who are focused on a single piece of property and do not consider the surrounding environment. When working through the issues, she views compromise as possible but very difficult.

The economic impact of not taking care of the environment was identified by P15 and she stated that if it were not taken care of now by the responsible parties then the taxpayers would have to take care of it later. The participant pointed to a large surge of development in the area that has been limited by protection through regulation and enforcement including the requirement to set aside property for preserves. She also mentioned the active water management by the county can be so effective that residents often don't understand when problems or restrictions occur. The participant works to convince others of her conservation perspective and believes that compromise and working together is possible.

P15 views her community as special because of the natural beauty and population tendency toward well-educated and retired residents and believes there is an income-based difference in water-related actions and conservation. When interacting with the community, she feels that close and open engagement from the beginning of any issue is the best way to address concerns. To help manage future conflicts she has promoted facilitated events, such as collaborative tours of water related facilities, to provide information and a common understanding.

Environment

Participant 4 (P4). P4 is between the ages of 30-59 and is currently employed by an environmental organization in the role of conservation and education. He has lived in southwest Florida for the past eight years and feels that his water practices remain the same at home and at work. The participant observed that the economy is dependent on the local water quality and environment and suggested there are not enough sustainable

efforts to maintain water quality. He pointed to threats such as urbanization, excess nutrients in the water, and exotic species.

Both professionally and personally he watches water consumption and feels that a way of conserving water is by monitoring rainwater and re-using that water for irrigation purposes. P4 feels that the community should take a responsibility in the conservation of local water and he made the specific point that water values are important for him at home. He is actively involved at home with teaching his child about water conservation. P4 also takes pride in planting vegetables at his home, using drip irrigation, planting buffer zones to keep fertilizer out of water features and making the environment a part of his everyday life.

P4 mentioned that there is tension in the community when economical resources are put towards environmental causes. He perceives that local community members tend to think that restrictions on environmental activities are unnecessary and will hurt the economy. The economy is directly tied to the environment and therefore creates tensions on both sides especially when making important environmental decisions. There must be a middle ground to resolve environmental versus economic decisions.

P4 believes that education is the key to changing the mind of how people perceive natural habitats and water issues, however he mentioned that education tends to function slowly which can be a conflict since the environment is in need of dire immediate help.

He suggested that education is needed to change the minds of individuals when it comes environmental water issues even though the process is extremely slow to change

the minds of a community at large. He has found that it can be a challenge to change minds when dealing with environmental education.

Although the participant believes that it can be a challenge to get the average citizen involved in water-related activities, has appreciates the openness that he has found as he presents to various different groups in the community. He suggested education is the key to getting people involved, influencing good decisions, and connecting water use and economic sense. He added that getting involved with organizations is a great way to collaborate on water issues. In his own life, he actively participates in the Greenscapes program. Additionally, P4 feels that education is important so that members of the community are aware of water issues. The participant's environmental background allows him to further educate local community members on water related issues. To facilitate the interpretation of data presented to the public, his education techniques include both scientific facts and personal experience.

Participant 9 (P9). P9 is a land planner who is 30 to 59 years old and has lived in southwest Florida for 41 years. He kayaks, goes to the beach, and bird-watches along brackish water. P9 feels that the quantity, quality, and availability of water are key and adds that conservation, storage, and filtering will be necessary for water management. He points to mass transit and affordable housing as upcoming issues and suggests that while there is still a lot of natural environment, a lot of it has been removed.

P9 is familiar with a wide variety of research, education, and outreach that occurs through RBNERR. He is satisfied with his information from the Friends of Rookery Bay newsletter and the general media, however he believes that community members can be

better notified and included in opportunities to participate. He feels that public notification and input should be part of the community water based decisions.

The existing government interventions through codes, engineering specs, government planners, etc. all serve to establish a structure to clarify expectation and limit conflict. P9 personally evaluates water impact in his land-planning role and is an advocate for conservation and wise use of water. On one hand he feels that the intervention should be stronger but on the other hand he is frustrated by water restrictions. He recognizes the balancing act that is required by the water management district that is necessary to meet the needs of the population and the environment. Beyond government intervention, P9 believes that individual homeowner behavior should include personal responsibility including the maintenance of their local swells and storm grates.

P9 suggested that the biggest issue is freshwater pollution, including the quality, quantity, and timing of freshwater flows, into the estuaries as well as the longer-term importance of maintaining water control and retention spaces. He pointed to several threats including invasive species, urbanization, over fishing, boat damage to aquatic habitat, and fertilizer. Additionally the participant mentioned the supply limitations and the overlapping water demand from agriculture, industry, residents, and the environment. He also mentioned the challenged of storage, drainage, and the seasonal nature of the weather. Although water conflict management primarily occurs through regulations, the participant suggested that individual and community wide conservation provides personal and community wide benefits. He expressed a solid understanding of the importance of

estuaries and pointed to the integrated aspects of the positive economic impact of people's attraction to and use of the environment and how the long-term success of each benefits the long-term success of the other.

Participant 11 (P11). P11 is a 30-59 year old who is an environmental specialist and has lived in southwest Florida for 12 years. Professionally the participant is involved with evaluating freshwater and land use. He bases his decisions strictly on the rules and regulations. The participant is concerned about the scarcity of the water and does not feel that others realize how little freshwater exists based on their unnecessary water use. He feels that people ignore the problems and threats and focus on themselves and their wants until its too late. He points out that even the people that oppose development are living where there was wilderness just 10 years ago. Additionally, P11 stated that people in the community often solve algae problems with chemicals and ignore water use restrictions. He recognizes the tension and he admits that, although he is not as bad as others, he is probably guilty of not always using water correctly. The participant tries not to waste water but his use is often based on the costs rather than stewardship. Personally the participant uses water in the standard ways at home and tries not to waste water but doesn't go out of his way to conserve it either.

P11 believes that collaboration is important and that real change can't be forced, rather it has to come through education for change to occur. Although the participant feels like there is some local collaboration he would like to see more engagement and interaction. He feels that there is a very limited sense of community and it is more common for neighbors to call code enforcement than to talk to each other. He also

mentioned that collaboration could be misconstrued as collusion, which threatens the collaboration process.

The participant perceives the local environmental threats to include greed, invasive species, a lower water table, loss of barrier coastlines, changes in salinity, chemicals, overgrowth in preserve. Because of the significant past water drainage it is difficult to restore and intervene toward rehydration. To add further pressure to the environment, the participant believes that current water use cannot keep up with the supply. The participant mentioned the preserves and resource protection established throughout the area and mentioned that he appreciates that some areas are being set aside from development. He feels that the preserves that are set aside are often not maintained and limited enforcement occurs states that at times wetlands that look fine are no longer functioning as wetlands because of excessive drainage.

P11 believes that money and political influences have been used to bend the rules. The participant stated that everything is economic here. When changes are made to the hydrology of the area, it is usually based on how it affects people instead of how it affects the environment. Sacrifices and the consideration of opposing pressures are necessary to maintain the quality of life, however greed and population increases often push the balance toward unsustainability and permanently changing the hydrology.

The participant pointed to the conflict that is embedded in every change of water pattern, water use, or water location and believes that rules and regulations are a way of limiting and managing conflict. P6 believes people don't understand the commercial

value of wetlands, however in spite of the challenges, a decent job of environmental management still happens.

Themes

The process of theme development identified 17 themes that related to the areas of focus within this research and are directly related to the initial research questions. The three major categories of themes are:

1. Attitudes and behaviors toward water
2. Perspectives of the community stakeholders toward social, environmental, and economic issues related to their local environmental decision-making
3. Points of shared value of the community facing environmental management issues

The section that follows presents the thematic findings categorized by the three major categories (see Table 4 for the categorized list of themes) with a description of the theme. It is important to note that the use of the word "stakeholder" within the themes refers to the participants who were representatives of stakeholder groups. Additionally representational statements are provided along with the number of the participant who made the comment. For example, "P1" signifies that the quote was from Participant 1 (see Participant Summary section for description of participants).

LIST OF THEMATIC FINDINGS

1) Attitudes and behaviors toward water

Theme 1. Stakeholders identified water as a central resource in the local area.

Theme 2. Stakeholders perceived availability, quality, cleanliness, and quantity as key elements of water sustainability.

Theme 3. Stakeholders perceived that diversity impacted water-related attitudes and water management.

Theme 4. Stakeholders' attitudes and behaviors are affected by interpersonal communication.

Theme 5. Stakeholders' professional and volunteer sustainability-related behavior positively impacts their personal sustainability-related behavior.

2) Perspectives of the community stakeholders toward social, environmental, and economic issues related to their local environmental decision-making

Theme 6. Stakeholders understand tensions exist between economic, social, and environmental issues.

Theme 7. Stakeholders recognize that social and environmental issues drive the area's economy.
Theme 8. Stakeholders identified tension surrounding community growth.
Theme 9. Stakeholders expressed various perspectives about drainage and balance of water.
3) Points of shared value of the community facing environmental management issues
Theme 10. Stakeholders perceive water-related tension in the local community between stakeholder groups.
Theme 11. Stakeholders demonstrated a limited understanding of shared value.
Theme 12. Stakeholders' decisions are often connected to a set of ideals.
Theme 13. Stakeholders identified tensions associated with the "wildness" of the area.
Theme 14. Stakeholders highly value a sustainable natural local environment.
Theme 15. Stakeholders perceive the local water features attract people to the area.

Table 4. List of themes

Attitudes and Behaviors Toward Water

Several of the interview questions (see Appendix A) were focused on the participants' attitudes and behaviors toward water and opened the space for the

participants to share their thoughts and perceptions. The participants were able to describe their perception of the importance of water and what was important about water. Additionally, the participants discussed where the elements that affected their attitudes and behaviors such as backgrounds, various communication channels, and their lived experiences. A thorough review of the collected data, five specific themes emerged that will be presented in the following section.

Theme 1. Stakeholders identified water as a central resource in the local area. Covering a wide range of reasons and viewpoints, all of the stakeholders converged on a common idea that water is an integral element of the local area. Stakeholders pointed to water as an environmental resource, a social resource, and an economic resource for the community and throughout the watershed. From human livelihoods to their recreation, from one's present existence to a sustainable future, from an aquatic nursery to environmental habitat, water is recognized as a central resource in the local area.

- "Water is your main source for everything and without water you will not make it." P3
- "Drinking water, we need it everyday; you need that more than you need food." P7
- "Water is just such a big part of everything that I do." P2

As an essential input and output, water is key to every aspect of life. Stakeholders pointed to its embedded nature in their lives as well as their dependence on water for their very existence.

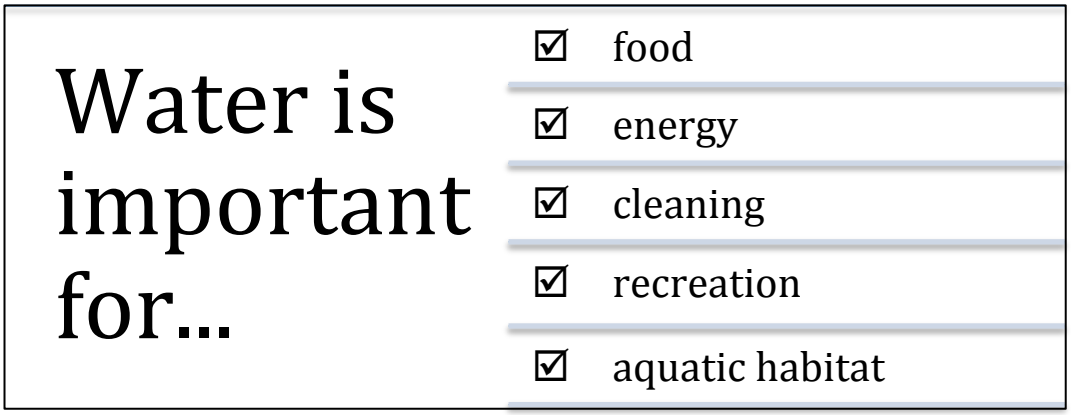

Figure 5. Water is important

The stakeholders highlighted several specific functions or characteristics of water as they reflected on the importance of water to their lives, to their community, and to the surrounding area. The following list identifies several of the areas that mentioned by participants and provides their specific wording.

Grow Food.

- "Of course agriculture needs water." P9
- "In a broader context all the food you eat is a product of freshwater. " P12

Energy source.

- "Water equals energy…. Water does equal energy, energy is very expensive." P13
- "They take it for granted that [water's] abundant and free, it's not. Every gallon of water that we use we have to pump and I don't have to tell you the price of gas and diesel has gone to." P2
- "Water is power" P13
- "I know we're using water to make the electric." P7

Cleaning.

- "Water is a mechanism we're using to be able to clean." P5
- "We use it as any homeowner would use freshwater. We use it to wash our clothes, clean the cars, drink, wash our laundry, and use it for our facilities in the house and…sprinkle our lawn." P6

Recreation.

- "It's awesome. There's not too many places that you can get the well-rounded fishing, saltwater and freshwater, and everything's convenient." P7
- "I live on the canal, I have boats, I go out on it a lot." P6
- "I am continuously swimming. I used to do a lot of swimming at the YMCA and that, and different pools. But I have more of a tendency to be using open water for my long swims now." P5
- "This is kind of the mecca of the golf course business." P1
- "As a hobby I kayak…. I spend a lot of time on the water." P12

Aquatic habitat.

- "[Water] keeps everything alive: the fish, animals, our plant life." P3
- "It's the breeding ground for the beginning of the fish life." P5
- "Important breeding grounds for a lot of different fish." P9
- "[Estuaries are] one of the richest eco systems on the planet, important breeding grounds for a lot of different fish, some which are viable both to sport fishing and also commercial fishing and that's why they would be

> important both for their economic role and contribution to the environment in general." P9

Food, energy, cleaning, recreation, and habitat were all key areas where the participants felt a connection to water. Agriculture, both on large and small scale, is a key part of the local community. The weather conditions and water flow make the area a prime location for the agricultural industry to operate and grow food. In a most basic sense, water is a required ingredient for food.

In addition to water as an energy source for life in the form of food, there are also several other aspects to the concept of water as energy. From political power to electrical power generation, water is power. In reverse, energy is often required to move water on demand. Pumps require diesel, electricity or other forms of power to operate and any of the power-generating inputs have associated expenses.

Stakeholders view the act of cleaning as an essential feature of water. On a small-scale personal hygiene, washing dishes, washing clothes, washing cars, and other common uses of water were mentioned or implied by every participant. On a large scale water is also used for cleaning in industrial settings. When the cumulative total of small-scale cleaning and the large-scale amounts are combined, the aggregate water use for the purpose of cleaning is significant.

Stakeholders interact with water for recreational purposes in an extensive manner throughout the local area. The abundance of water in the community provides convenience to recreation activities that require direct contact with water such swimming,

kayaking, and boating, and fishing as well as recreational pursuits, such as golf or gardening, that use water to facilitate the experience.

The rivers, lakes, bays, beaches, swamps, mangrove forests, and estuaries all provide unique and specific habitat. This delicate and complex environmental space provides a nursery, a refuge, and a place to live for a broad array of wildlife as well as the potential of an abundance of food resources from a healthy ecosystem.

The participant statements listed above reflect the unanimity of the centrality of water to their attitudes and behaviors toward water. Including the importance as an input to grow food, an energy source, a tool for cleaning, a common recreation space, aquatic habitat, stakeholders perceive water to be a central resource for the community.

Theme 2. Stakeholders perceived availability, quality, cleanliness, and quantity as key elements of water sustainability. Water is used, enjoyed, and interacted with in many ways. It is key to understand the attitudes toward water and water use for improved water management and for the design of future stakeholder education and interaction. Four specific concepts emerged from the data as elements of water that are key to the participants: availability, quantity, cleanliness, and quality. Although the meaning of these words had slightly varying connotations between participants, the consistent repetition of these four characteristics of water was notable.

Figure 6. Important aspects of water

The sections below attempt to capture the nuances that were expressed by the participants and move beyond the aggregate equivocations and toward the essence of the participant's perceptions of water.

Availability. Participants identified the very existence of freshwater as a concern. Not only do they want it to exist somewhere in a general sense, they want it to exist where they want it to exist or as one participant stated, "Availability is just that, if I turn the tap on I want it to come out!" The concern for availability extends beyond the current availability and was predominantly focused on its future availability.

- "Most important about freshwater would be its longevity." P7
- "You can't exist without it, you have to have access to freshwater." P10
- "The scarcity of it." P11
- "The more water I use today, the more water I may not have in the future." P7

- "Freshwater is not going to last forever." P1
- "All of these homes, all of these businesses, all of this new growth, they're all going to need water…. There isn't any available." P6

The concepts of supply and demand are becoming particularly relevant in the local area as population pressures add pressures to water availability. Several participants focused on the seemingly exponential increase in demand and the depleted supplies from past actions that were already impacting current availability exemplified by water restrictions. Although there was some variation in perspectives related to the current abundance of water, the majority of participants pointed toward availability as a notable challenge for the future.

Quantity. In addition to importance of the existence of freshwater, the quantity of freshwater is also an essential aspect that was identified by the participants. With a demand that has continually increased with no apparent decrease in the near future and lagging supply, water quantity is quickly becoming more than a distant future concern and is beginning to elevate on the list of present challenges. In addition to having a large amount of water, the concern of water quantity also includes having the right amount in the right places at the right times. The seasonal variations from both supply and demand and the opposing challenges of freshwater pollution and saltwater intrusion are all forces that have an effect on the pursuit of optimal water quantity.

- "The amount is the most important." P13
- "It is highly seasonal so that there is an excess part of the time and a shortage the rest." P10

- "It rained 120 inches here last year. 85-95% of that water went right back out to the ocean at the same time that we have a shortage here." P10
- "Water conservation is certainly important especially in a coastal community where we need to be cognizant of the fact, that if freshwater levels are low inland, there is a change of salt water intrusion into the area." P8

The statements identify the opportunities caused by the rapid depletion of inland freshwater storage through efficient drainage. This quick purge of freshwater also eliminates the healthy barrier that prevents saltwater intrusion. Another component of this issue highlighted by the participants is the contrast of opposing weather and population variations, where the population increases when the water table decreases. All of these factors affect the amount and blend of water and create a challenge for freshwater management.

Cleanliness. The content of water seemed to be the consensus for the commonly used word "cleanliness." This concept that was identified as important to the participants, included anything that was suspended or submersed in the water. Any foreign substance that affects, or could affect, the fitness for use was especially an area of concern. Another aspect of cleanliness is water's capability to clean. It is difficult for water to make an item that is attempting to be cleaned any cleaner that the water that is used for the cleaning.

- "The quality of the water, meaning cleanliness, what's in it." P1
- "I'm probably more worried about the cleanliness of the water…. Having a clean supply." P5

- "It would be less to treat if it was coming here clean." P3
- "What's important to me is that it be clean." P9

In the interviews from the participants listed above as well as several others, the words "clean" and "cleanliness" were used repeatedly and highlighted as a desirable characteristic of water. In addition to clean water in general, there appeared to be a focus on the importance of a clean supply of water. Although there may be many reasons that the participants want clean water, there was a common idea throughout the participant conversations that the cleanliness of water is important.

Quality. Another primary characteristic of water that was identified by participants as important was water quality. The concept is related to cleanliness, but the usage seemed to concentrate more specifically toward the chemical or structural makeup of the water. The connotation of quality, as used by the participants, was focused more on freshness rather than turbidity or pollution.

- "How fresh is the freshwater, that definitely would be the most important part." P1
- "The most important aspect I think that I as well as all of our citizens are concerned with it is, is it fresh." P15
- "Water quality and quantity, you know, filter and storage of water." P8

Several participants mentioned the "fresh" aspect of freshwater, as an important feature of water or as one specific participant stated, "How fresh is fresh?" Another related question that aligns with the participants' comments is it fresh enough? Considering a threshold for water freshness may be beneficial and will likely vary based

on application. Wherever that threshold may be located for acceptable water quality and freshness, quality is an important characteristic of the participants' attitudes and behaviors toward water.

Theme 3. Stakeholders perceived that diversity impacted water-related attitudes and water management. Another attitude that was mentioned several times was related to the diversity of the area. Differences can be both unifying and divisive when attempting to manage limited resources such as water. Additionally culture and background can affect attitudes and behaviors surrounding water and the environment in a myriad of ways and intensities.

- "I came from farmlands and open lands or wooded lands up in [the Midwest] so I was after the same thing." P5
- "I think what people come down here, a lot of the people are from the Midwest; there's a lot of water up there." P7
- "Used to be our source of new residents was I-75 and people from the Midwest and people who were like-minded and they wanted a nice little community. Now we get an influx of other people that want more of an urban type environment." P2
- "We've got tremendous talent coming down here from the Midwest and east coast, retired people who frankly are increasingly healthy and energetic and not really ready to just fold up their tent and do nothing and all oriented very much towards public service." P10
- "No one is from here or this is their second home." P1

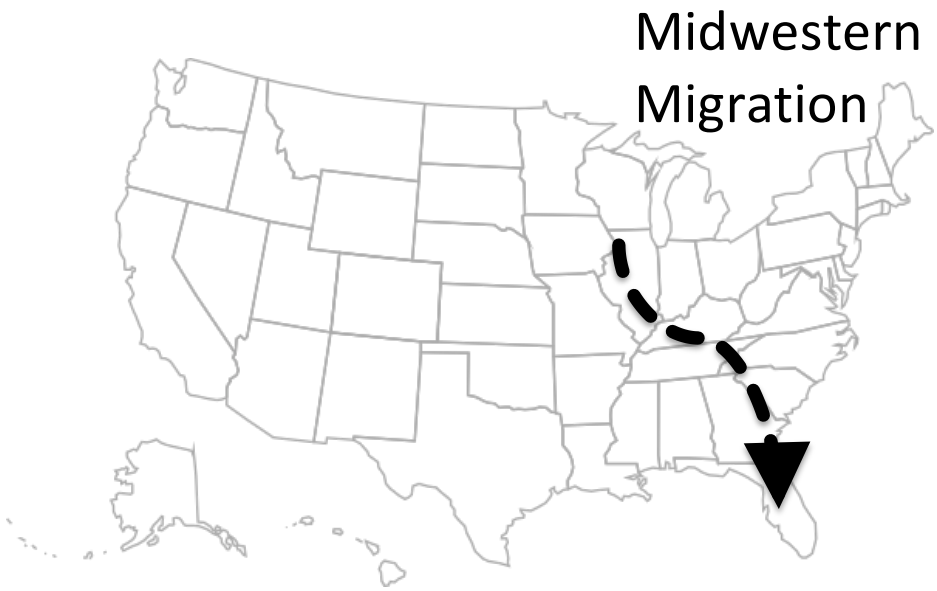

Figure 7. Midwestern migration

This categorization of individuals by the participants appeared to focus on the urban versus rural roots especially centering on those with the Midwestern roots. Some of the opportunities and challenges embedded in the common origins were mentioned in the interviews.

In addition to the diversity of geographical origin there were also other statements that highlighted diversity based on ethnic backgrounds.

- "I love the diversity of what we have here; the people that come in and out. Its awesome." P7
- "I think more cultural diversity would be nice." P4
- "We have a very large immigrant base here, Latinos you know, and they are comfortable here, they like it here, they fit in and so they are here and they are

> arriving and so our population growth is well and above what the national average is." P10

Although some participants mentioned the cultural diversity in a positive way, many pointed toward the benefit of common backgrounds when dealing with tensions. The Midwestern farm ethic was referred to multiple times in alignment with conservation attitudes. However, the geographic and ethnic origins were not the only aspect of diversity mentioned. Renters and those of a low socio-economic background were perceived to be less focused on conservation related activities and have their actions toward water-use and storm water management to be less environmentally friendly. In addition to the impact of diversity on participants' specific attitudes and behaviors, diversity also may affect how information is shared.

Theme 4. Stakeholders' attitudes and behaviors are affected by interpersonal communication. The attitudes of stakeholders toward water is directly affected by the information that they receive therefore, as part of understanding attitudes, it is essential to understand how the participants receive information. Additionally, the participants recognize that education is important and makes a difference in effecting behaviors toward water. From an understanding of the quality of the water conditions in the bay and throughout the watershed to the general environmental conditions of the local area, effective communication is an essential part of water management. This includes both information sharing and education, which are notable aspects of how people interact with water and each other.

- "When I get a chance I go out and visit the field office down there and I get word of mouth." P5
- "Really just getting it off from news clips and word of mouth." P6
- "How do I get information? Mostly personal communication." P4
- "Probably from my fishermen that are on staff. I'd say almost everything comes from that point." P1

In spite of the seemingly ubiquitous nature of mass media, the participants repeatedly pointed toward personal communication as a source of information that informs their attitudes and behaviors. The specific sources ranged from fishermen, community leaders, and government representatives. This does not suggest that either social media or traditional media were shunned, however personal communication was identified as prominent method of receiving information.

Theme 5. Stakeholders' professional and volunteer sustainability-related behavior positively impacts their personal sustainability-related behavior.

It is reasonable to expect that there would be an interchange between one's personal and professional life and although actions may be context specific, that there would be a connection. Throughout the interviews, the impact of professional actions onto the participant's personal context repeatedly emerged. At times the water-based professional actions were generated by information and improved understanding and other times the behaviors were mandated by rules and regulations. Regardless of the initial cause, the participants' comments pointed toward a positive impact from professional actions to personal conservation-related behaviors.

- "The level of conservation that my professional life has taught me has increased home substantially, exponentially." P1
- "I think it's practice what you preach, so I do the same at home and treat our system the same." P4
- "Water is just such a big part of everything that I do that it merges between personal and [professional]." P2
- "I think that conservation and things like that on the golf course business, the golf course side of things, the industry very quickly makes its way into your personal life." P1
- "I've been an engineer my whole life so that's my personal." P12

These shifts described by participants were both subtle and overt and were affected by learning and education as well as established professional ways of thinking. Based on the interviews it appears that interaction with water on a large scale within the professional space has an impact the stakeholders' attitudes and behaviors toward water in the personal space. Similar to effects of professional behaviors, influence also stemmed from volunteer efforts that impacted personal behaviors.

Perspectives of the Community Stakeholders Toward Social, Environmental, and Economic Issues Related to Their Local Environmental Decision-Making

Several questions in the interviews (see Appendix A) related to the participants' perception of the existence of social, environmental, and economic issues and the concomitant interchange and tensions between these areas. The participants understood these areas and readily described their perspectives and experiences within this

framework. The following material presents the four related themes that emerged from the research data.

Theme 6. Stakeholders understand tensions exist between economic, social, and environmental issues. Participants are concerned about economic issues, social issues, and environmental issues. However, none of these types of issues exist in a vacuum; they impact each other to various degrees and in multitude of ways. The participants recognized the tensions that exist between these three areas.

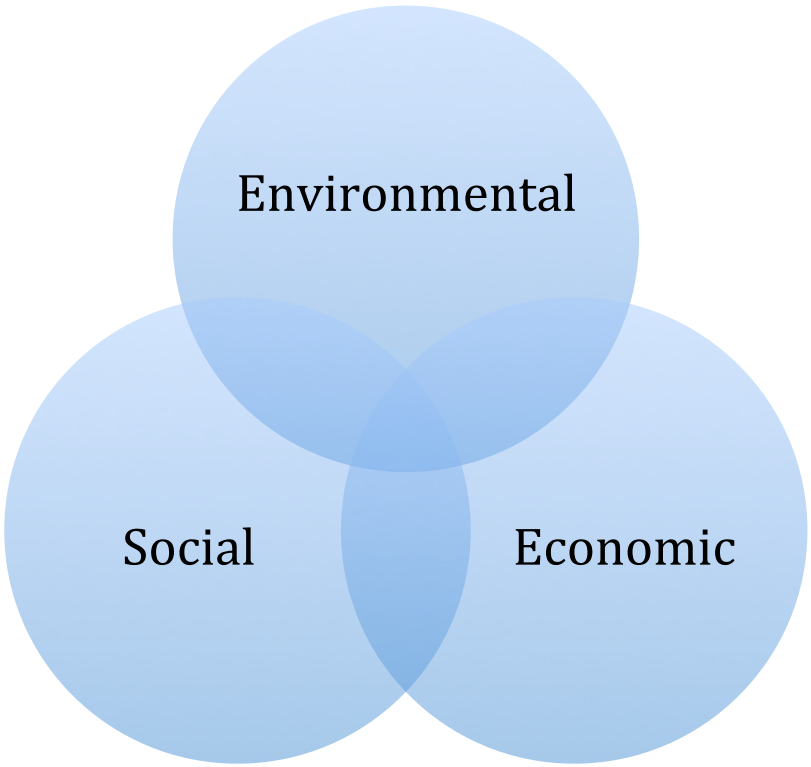

Figure 8. Economic-social-environmental Venn diagram

For example, an alternative to irrigating with freshwater is effluent water (environmental), but this process still involves costs (economic) and is perceived as dirty

(social). A related issue is the desire for eye-catching landscaping and green grass continually throughout the year, however "landscaping comes at a cost."

- "People put tons of fertilizer in their yards. You want this pretty green grass. I mean there's a trade off for these nice green lawns." P2
- "We put in a new lawn…and watering is expensive." P5
- "We are putting water and sewer and they're fussing about the cost." P14

Several of the above statements for participants emphasize the trade-offs or tensions between the social pressure of wanting aesthetically pleasing lawns in contrast to the environmental and economic pressure maintaining the ultra-green lawns when they are not in a traditional growing season.

Another issue that is wrought with tension is standing water and the concomitant issue of drainage. This issue involves the issues of mosquitos that include both social and environmental concerns. These social-economic-environmental pressures exist throughout the community and are reflected in the following statements from participants:

- "Because of man made diversions, we have really affected the food supply for many of the fish and wildlife." P8
- "It takes a lot of water to grow food." P13
- "There is just differences of opinion: those who want the money of the land, those who want to conserve the land for environmental purposes." P15

These statements from the participants illustrate the tensions between economic, social, and environmental concerns. Although there is a range of reasons and

perspectives within these tensions, the recognition of these tensions were prevalent across the participants. However these concerns are addressed and common ground is pursued, there is a joint agreement from the participants that these tensions exist specifically in relation to local environmental decision-making.

Theme 7. Stakeholders recognize that social and environmental issues drive the area's economy. In an effort to find common ground and create a sense of shared value among the stakeholders, policy makers and others have attempted to monetize social and environmental issues or find other related incentives. The economic factor limits negative behavior both by threat of penalties and the awareness that "the tax payers are going to have to pay for what needs to be done to adjust the damage that would be created by allowing [destructive behavior]" (P15). In contrast, tourism and responsible growth promotion focuses on the positive economic impacts of the social and environmental benefits provided throughout the area.

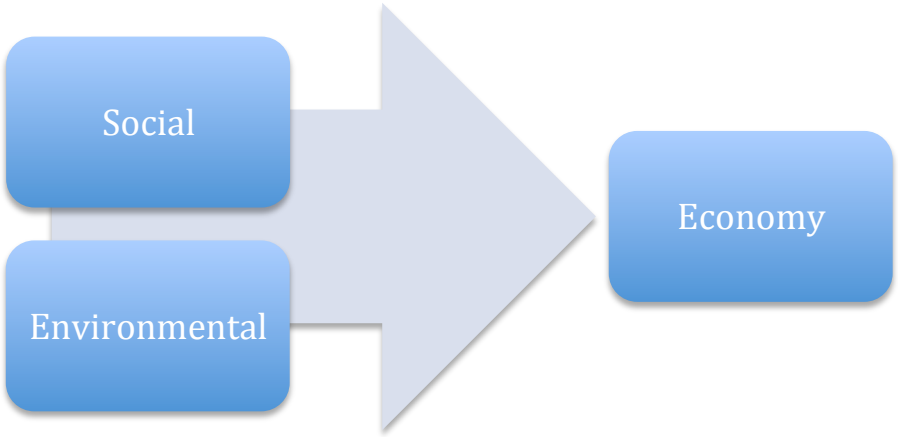

Figure 9. Drivers for economy

The stakeholders recognized that economic considerations influence decisions related to water use.

- "As far as water consumption? It's just the idea of trying to keep the water bill down." P2
- "Every gallon of water that we use we have to pump and I don't have to tell you what the price of gas and diesel has gone to. We need to limit as much as we can." P2
- "I actually think I am water conscious because of I have a budget that I have to conform to every year." P3
- "The cheapest gallon of water that we can produce is the one that we can conserve, so conservation is a key element, as we go forward with the population." P14
- "Water quality has huge implications in our local economy." P4
- "The problem is money; it's always money." P10

Whether the constraints provided by money are positive or negative, they are perceived to be a factor when making decisions related to the local environment. The participants identified the economic costs that encourage reduction or limitation of water use and therefore promote conservation. Additionally, participants pointed toward the economic benefits of maintaining an acceptable level of water quality both in the water system established for consumption and in the water within the local ecosystem. In contrast, economic factors also limit the ability to effectively remediate and correct environmental challenges and create shared value between the stakeholders.

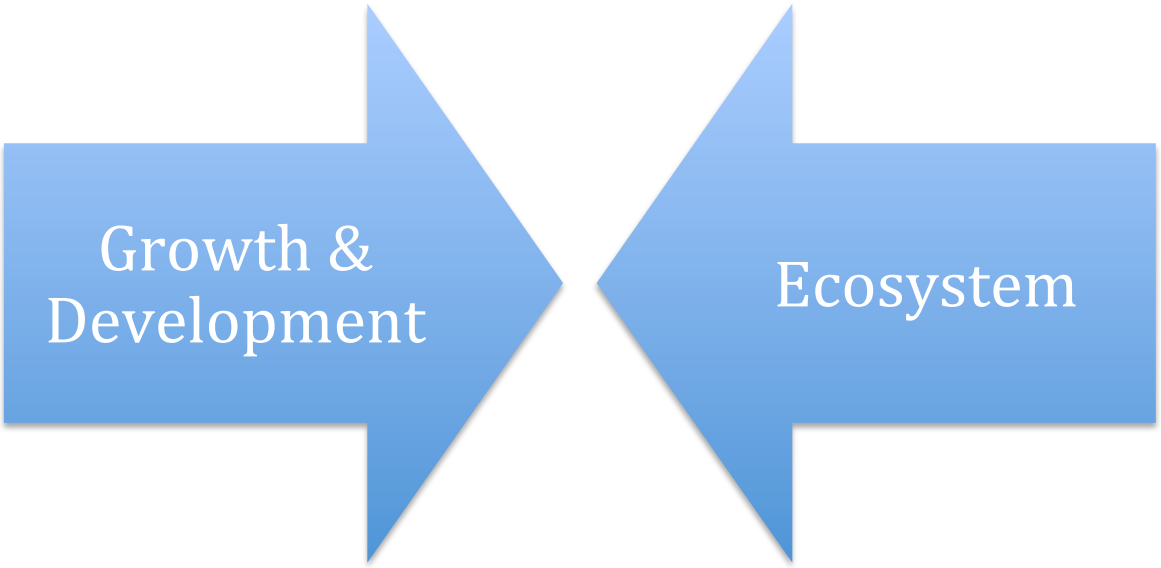

Figure 10. Community growth tensions

Theme 8. Stakeholders identified tension surrounding community growth. Population growth often equates to a heightened demand on the water supply and can put a strain on the transportation system leading to congestion. The additional population also corresponds to more houses, businesses, parking lots and less natural spaces. The added impermeable construction creates a great deal of tension on an ecosystem that is already challenged by an aggressive manmade drainage system.

There are clearly economic benefits to growth, at least in the short term, and this generates a tension with the costs associates with the potential alteration of environmentally sensitive land. The balance of the water supply and the water demand will likely continue to become an even more significant issue as the community grows and adopts to the strains of growth.

- "I find very few cases where you think that there has been a wasteful use of freshwater. The problem is our growth is exceeding our availability to provide the water and we got to address that problem pretty quickly here." P10
- "Within five miles of here it looks like the population's going to explode with so many people. And I'm sure that people in water management and so forth know what the needs will be but to me it's a concern, there's just so many, so many people coming in, there's going to be so much use." P7
- "As you build more and more and you get more pavement, more asphalt, you get less permeation, so that water…all ten million tires go to nothing on cars every year. Well that stuff goes some place and I'm assuming it goes in the watershed and ends up in the rivers and the stream and whatever." P6
- "Development is taking place and that's part of the business and at the same time I believe that we can guide it and we can, we can limit how much development is taking place, especially in an environmentally sensitive land." P15

The participants' common perception is that the population increase is inevitable and that the amount of people is going to increase dramatically. The continued development and the concomitant active water management create a range of pressing challenges and tensions. Regardless of the solutions, based on the participants' comments it is clear that they sensed notable tension related to the community growth.

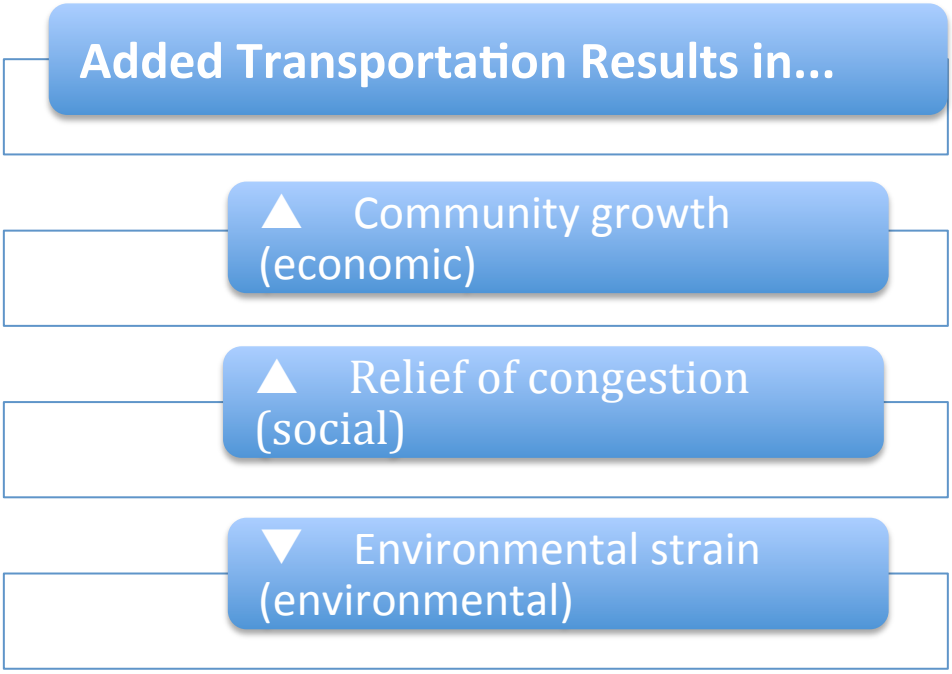

Figure 11. Results of added transportation

With this growth comes the demand for improved and additional transportation systems. Planning more roads heightens the dilemma among the economic benefit of community growth, the social frustration of congestion, and the added environmental strain. Given the impact of existing roadways on inhibiting the natural water flow, adding additional transportation structures only serves to magnify the current challenges.

- "The natural environment it's been clear most of it. Certainly has been impacted by drainage putting in roads." P9
- "If I could change anything it would be basically the infrastructure of what they build here. I don't think anybody even fathomed that this area was going to be this large." P7

- Roads are always an issue. What would make it better, I mean, I would like to see us build more roads unfortunately it is such an environmentally sensitive area that its hard to construct anything…. I would like to see more roadways in and out. I mean, the congestion gets worse every year." P2
- "From our construction end, to be able to build a road right now, 25 to 75 percent of the cost of the road is to be able to go on out there and do water management. The roads are obviously creating a big problem with water management to begin with but sometimes it gets very elaborate and I don't know if the public really realizes how much their tax dollars for road building are basically going into water management." P5

The participants expressed a common demand for less congestion and better transportation. Additionally, the dramatic cost of environmental allowance in road construction was identified. The ongoing tension between the seeming necessity of constructing roads and the environmental concerns with adding these roads was a common concept that was shared by the participants as they contemplated decisions related to the local environment.

Figure 12. Henderson Creek at US 41 (downstream view), Source: Bruce Lilyea, 2014

Theme 9. Stakeholders expressed various perspectives about drainage and balance of water. Canals and other manmade water control systems have been a significant part of South Florida for over a century. Although these interventions of water have been accomplished for a variety of reasons, the results are seemingly ubiquitous. The slow percolation of water through glades and winding rivers has been replaced with linear canals that rush the water toward the ocean, bays, and estuaries. The overly efficient process strips the needed water from the glades water-based ecosystem and pristine Cyprus swamps and inundates the estuaries with too much freshwater too quickly. This rapid transport of water limits the necessary filtration of water on its way to the ocean, challenges the ability of fresh and saltwater to blend properly in the estuaries, and creates a void that allows saltwater to creep inland. The participants identified several of these issues throughout the interviews.

- "A lot of the exotics that you have from the flora standpoint are coming because of improper land management because water flow in most of the wetlands that are out there are having a tremendous problem because most of the drainage that was put in…. I don't know how you can really get yourself back to a predevelopment standpoint." P5
- "Lower the ground water table or strain off the land quickly enough and a lot of what even still looks like wetlands is actually no longer a wetland." P11
- "You shed water to fast freshwater floats on saltwater. If you have an outflow of freshwater it will actually sit over the top over the saltwater and you don't get a mixing and freshwater stops the salt water from getting oxygen and fish the salt water fish don't move up through the freshwater so they don't breed and it causes fish die off and things like that, there are a lot of things that can go wrong due to what people are doing with canals." P12
- "If we don't do a good job of conserving our freshwater we'll have some problems. There's some places in the State that over pumped their aquifers and then the saltwater intrusion occurred and basically destroyed their aquifer so we are very conscious…. We want to make sure that we don't get any saltwater intrusion." P14

Freshwater pollution and saltwater intrusion as well as threats to plants and animals were highlighted as problems related to drainage and an improper balance of water including both the presence of water and the blend of fresh and saltwater. Even though the local ecosystem and water flow may not be able to be returned to the

condition it was in the mid 1800s, it would seem that holding water upstream and releasing it at a appropriate level and rate would be a reasonable solution. However, even when there is agreement that excess drainage is a problem, there is disparity of opinions surrounding potential solutions that affect the local environment.

- "We used to, we used to like people to dig their lakes nice and deep and nice and big but there was a faction some of them were environmentalist that did not like deep lakes." P12
- "We are actually capturing, treating and putting storm water in these ASR wells to later pump out during the dry season for irrigation so we are really on the cutting edge of that." P14

Making decisions that impact the local environment such as storing water in deep lakes and ARS wells can be considered both beneficial and challenging to the surrounding ecosystem. Although they may address some of the drainage concerns, they may provide poor environmental habitats for the flora and fauna of the region. These varying realities toward social, environmental, and economic issues need to be evaluated and understood as sustainable value is pursued and decisions are made about the local environment.

Figure 13. Henderson Creek at US 41 (upstream view), Source: Bruce Lilyea, 2014

Points of Shared Value of the Community Facing Environmental Management Issues

The participants' perspective of value and value creation was an underlying topic that extended throughout the interview questions (see Appendix A). When considering the collected research data in aggregate, several themes relating to value become apparent. Ranging from what the participants value, what is the basis of the participants' value decisions, and where are the points of connection among the participants' perception of value, the participants broadly shared their perspectives and provided rich material. From the transcripts that were generated from the interviews, several insights were gleaned and the ensuing six themes are presented in the following section.

Theme 10. Stakeholders perceive water-related tension in the local community between stakeholder groups. When an individual's wants and needs exceed the limited supply of a resource there is tension. When these tensions are extended across a range of stakeholders, the perceived tensions can be exponential. For an array of reasons including culture, interests, locations, and roles, participants perceived the tension throughout the range of stakeholders. In some cases these were minor annoyance and at other times these were structural or entrenched conflicts.

- "Why should we pay for all of the clean up of water that's getting dirty upstream not because of what we are doing but because of what the farmers are doing and the other people upstream and so you got this split and, for thirty years now, they sat down and stared at each other and nothing has happened." P10
- "I believe there is a way of working together and coming up with a compromise that can work for everyone, but it is very difficult to hammer that through because you know they will say, well, you are taking away the rights of their land. They could build 'x' amount of houses rather than limit them to…take into consideration all of the environmental aspects." P15

In the attempts to generate solutions, these conversation take place between people who have contrasting viewpoints. One such participant made the statement: "The environmentalists always think they are right one hundred percent and the engineers we know we are right." Another added, "Of course, I think my attitude is the most healthy of all!"

Similarly, these tensions between stakeholders were illustrated by a wide series of comments. A participant noted, "There is tension between the city and the homeowners due to increasing costs of water rates." In contrast, the tension between developers and the county government officials was demonstrated by the description of a time where they "held back on clearing …to let the wildlife adjust to our presence and find out because we didn't clear it we had to come back and go through [more permitting paperwork]".

Another participant pointed to the tensions between farmers and those downstream. "I'm a capitalist and I understand people need to make money and farmers have to farm…but we've got to have a better balance and a better method than we have now as far as getting rid of that leftover residue from the farmers [upstream]." These comments clearly illustrate the tension, and awareness of the tension, among the stakeholders of the community facing environmental management issues.

Theme 11. Stakeholders demonstrated a limited understanding of shared value. The recognition of tensions between stakeholders and between economic, social, and environmental interests does not automatically imply common ground or shared solutions. Shared value is the intersection of relative desirability between stakeholders and their array of interests. These opposing pressures can create a springboard for improvement and can help the system to function at a higher level. Unfortunately many times the assumption of parties to a conflict assume that they are working in zero-sum scenario when in reality finding common ground, a shared story, and shared value does not necessarily mean compromising, giving in, or giving up.

- "Most people don't realize that, they just see nature as some impediment of making money or breeding ground for mosquitos or whatever. They don't realize just how huge of an economic benefit it actually provides us, and because, think about it, there is nobody saying…the wetland over here saved you spending this much money last year." P11
- "There are people out there that think any time you're doing anything for the environment you are putting unnecessary restrictions and things that are going to cost money and hurt the economy." P4
- "The guys that seem to make out the best are the guys that just go in there and rape everything and just get done…. We proposed a lot of preservation…and we ended up with just a hell of a fight." P5
- "People come out and they will protest some development or another then they will go back to their gated community and its like 'where do you think your house was before like ten years ago?' You know! It was wilderness and then they go out and complain saying someone else can't build their home, you know, you already got to live in yours so…it's a complicated issue and all that plays a huge part of it." P11
- "Is there a middle ground where we can have both development, if it is managed properly and still protect the resource base for the water? That's the fight that's going on right now and there is not a solution in sight." P10

It was noted that many people do not realize the possibility for a healthy ecosystem to provide an economic benefit that creates a higher quality of life for its

human inhabitants. The conflict surrounding water use has persisted and has not lead to common ground. Rather than pursuing points of shared value, the perception is that an anticipated solution would require stakeholders within the community facing environmental management issues to compromise and letting go of one's tightly held beliefs.

Theme 12. Stakeholders' decisions are often connected to a set of ideals. Decisions are not made in a vacuum and it is beneficial to understand how decisions are made and on what they are based. A common theme that emerged from the interviews was that participants regularly pointed toward a concept, belief system or set of ideals that they were tethered to as the basis for their decisions and the foundation for the paradigm that they used to navigate these tensions.

- "I've always labeled myself as a conservationist." P1
- "I'm a business person, but I'm also very much a conservationist." P2
- "People that are farmers and that grow up as farmers, years before it became fashionable, we've always reused product rather than put it into the waste stream. It's just the way we grew up." P2
- "I'm sure my upbringing has a lot to do with how I'm looking at it." P5
- "If I can follow all of those twelve points of the Scout law, then I think maybe I'm doing the right thing. I'm a Christian, I go to church every Sunday, I believe in the Ten Commandments, I try to do what I think is right." P6
- "Every religion known to man has a conservation element in it and if people believe in those religions, people have to believe in conservation." P13

When asked about how they made decisions, the participants regularly pointed back to an underlying ethic or believe system that they espouse. More specifically, participants' decisions are often based on belief systems including farm ethic, mid-western ethic, Boy Scout law, Christian beliefs, and an environmentalist ethic. Throughout the interviews this connection provided a commonality, or point of shared value, between the stakeholders from a community facing environmental management issues

Theme 13. Stakeholders identified tensions associated with the "wildness" of the area. The natural setting of the communities surrounding the Rookery Bay estuaries provides an environment that places people in close proximity to wildlife and nature. The combination of the conveniences and amenities of an urban community and the "wildness" of the swamps, estuaries, and sprawling scrub provides an array of tensions.

- "[This area] was officially declared by the United States government uninhabitable 100 years ago, the core of engineers declared the south of the everglades as uninhabitable swamp and marked it on the maps that way. The official U.S. map of the United States mark is a big blank area uninhabitable, right in the middle of where we are right now!" P10
- "I do really like the wildness. I think that is probably one of the more important things with me and my family -- to keep the wildness of what we have in the Picayune area with all of the development." P5
- "We have really affected the food supply for many of the fish and wildlife that thrive off that so the whole system has changed from the way it was, I think

we need to move back the way it was before to preserve the whole eco system. I think one of the most important parts of that are the estuaries." P8

- "I know people who start out butterfly gardening end up with, they realize that the small changes they make can have huge impacts on wildlife in their yard and they start doing more things that are sustainable for wildlife, start doing more for the environment." P4

Participants identified a variety of tensions involved with inhabiting the "uninhabitable". Some pointed toward an environment that existed before the implementation of the extensive canal system and others bask in the existing wilderness on the edge of an urban space. Several of the participants mentioned that interaction with nature and wildlife prompted responsible behaviors as they dealt with the tensions they perceive in and around the "wildness" of the area. This commonality of the community facing environmental issues surrounding the area's 'wildness' is a point of shared value that can be woven into the shared story.

Figure 14. Scrub habitat along Shell Island Road near Rookery Bay, Source: Bruce Lilyea, 2014

Theme 14. Stakeholders highly value a sustainable natural local environment. From the swamps to the beach, the Cyprus forests to the mangrove forest, the places for fish hatch and for fish to be caught, the Rookery Bay area offers an amazing natural space that is valued by many. This complex ecosystem, with its rich environmental spaces, tropical weather and varying levels of salinity throughout its waterways, offers a unique sense of place. In a reference to the images from the photographer Clyde Butcher, one participant commented, "When you see those photos, you know immediately where, a general sense of that region…. It couldn't be anywhere else in the world."

- "I love it, absolutely love it." P1
- "The weather is phenomenal. You've got to like the weather." P1

- "I like going to the beach. I like the fact that we have Corkscrew Swamp so close, that we've got Rookery Bay, we've got scrub habitat…. There are opportunities to get out an enjoy nature here." P4
- "Being in a prime Cyprus swamp, I really put a lot of value in that." P5
- "We have a really interesting, or cool, environmental area where animals, fish, things like that, kind of cross. Meaning we have a lot of things that typically exist only in saltwater in our area when we have the typical things that exist in and around freshwater kind of mixed all in between. I mean we've got blue crab that are as big as dinner plates that are filled with all of our freshwater ponds and water system along with saltwater species of fish. That's pretty unique." P1
- "Mangroves growing on the sides of freshwater ponds, we've got a lot of that. You know, so our area, very complex and we get to see the best of both sides all in here together which is really cool." P1

Although the reasons varied, there was a consistency throughout the interviews that the participants enjoyed the natural aspect of the local area. Some participants chose to live in the swamp and others chose to live directly on the bay. In a similar contrast, a few participants spoke about boating or kayaking on the saltwater several times a week and another admitted to no interact with beach or saltwater at all. In spite of these differences, overwhelmingly the participants from the community facing environmental management issues talked about how they highly value the natural elements of the local area.

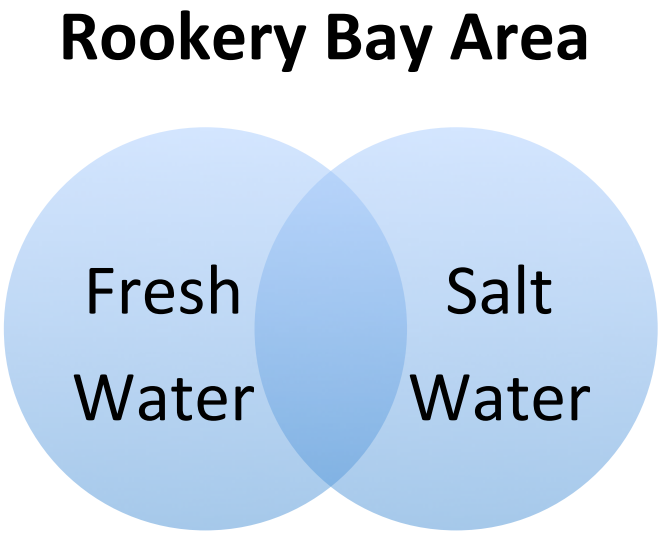

Figure 15. Freshwater-saltwater Venn diagram

Theme 15. Stakeholders perceive the local water features attract people to the area. Noting a significant element of the area, the local community was described by a participant as a "water-based environment." Both residents and tourists are drawn to the area because of the many water features that are present. The proximity of pristine swamps and estuaries as well as glades, rivers, bays, and beaches make the area unique and desirable.

- "I use water as one of the basic tools to promote our area to potential visitors, we are primarily a water based community." P8
- "What I like about it is obviously the weather, the beaches, the boating, the fishing, you know the same thing everybody else does. That's what brings people down here." P10

- "A lot of people move here because we have Corkscrew Swamp and we have these great natural areas, we have the gulf, we have the beaches. People move here for those environmental things." P4
- "If we did not have relatively clean beaches and relatively healthy estuaries I think that would definitely make a difference on the number of people that would come here." P9

Participants identified that the bays, beaches, estuaries, and other water-based features of the community affect the area's relative desirability. There is a perceived value of water-based features from both residents and tourists that impact the growth of the community. The sustainability, and even thrive-ability, of the waterways is an essential part of the long-term viability and success of the community.

Figure 16. Elements of community draw

Chapter Conclusion

In order to honor and provide context to the participants' statements, it is important to understand the backgrounds and perspectives of those who offered their insights. The 15 participants in this study shared rich and valuable perspectives that were transformed into common themes that were arranged around three major concepts stemming from the goals of the research – attitudes and behaviors; perspectives toward economic, social, and environmental issues; and points of shared value. Within these overarching categorizations 17 themes are presented that emerged from the collected data. In the next chapter, these themes will be converted into findings. Additionally a reflection on the literature will be offered that includes recommendations, limitations, and directions for further research.

Chapter 5: Discussion, Recommendations, and Conclusions

In previous chapters the existing literature was reviewed, the qualitative process was described and the participants' words have been combined into themes. In this chapter the transformation of the data continues as the themes are further developed into findings and connected back to the existing literature. Additionally, the pragmatic recommendations stemming from these narratives will be addressed along with the consideration of the limitations of this research and a look to the future.

Findings

The following section is laid out in alignment with the three primary categories of the themes. The findings related to the themes are woven together to present a more cohesive narrative as the outputs of the research are presented. The section that follows will tie the findings back to the research questions.

Findings on the Participants' Attitudes and Behaviors Toward Water

To impact any conflict or future related conflicts, it is highly beneficial to initially establish an understanding of the attitudes and behaviors of the people who are involved in the scenario. In this particular case study research, these efforts were directed toward understanding the water-related attitudes and behaviors of the community stakeholders and relevant decision makers in the Rookery Bay watershed.

Water is important to stakeholders -- more specifically the availability, quantity, cleanliness, and quality of water are important. Although this concept may seem obvious, it is a foundational point of agreement that is crucial to establishing a shared narrative as common ground and conflict solutions are pursued. Although there is a wide

range of perspectives of why water is important among the participants, and stakeholders in general, their common story begins with their geographical proximity and their common belief of the essential nature of water.

Contrasting perspectives impact people's various water-related attitudes and their approaches to water management actions. Throughout the interviews, no participant completely discounted the economic, social, or environmental aspects of water-related issues, however the weightings given to each individual category were not the same. They looked through different lenses and gave varying levels of focus and merit to the various aspects of community issues. The diversity among the stakeholders can be problematic and add challenges to the process of working through issues, however it can also generate creative tension that propels the community to greater levels of shared value.

The stakeholders' perspectives are created and fed by an array of inputs. In a world of mass media and electronic interaction, it was somewhat surprising to hear the participants talk about face-to-face communication as a primary means of information sharing. The community leader, the charter boat captain, the local government official, and the person at work were all considered to be valuable source of information. A related idea that emerged from the research relating to communication was the fact that participants want convenient information, however personal conversations are not always quick or convenient. These seemingly opposing themes illustrated the reality of the participants' busy lives and the contrasting desire to connect with others and the world around them.

Much of the time demand, based on the participants' comments, came from their professional and volunteer commitments. The exposure to environmental and social tensions within these settings has far reaching effects. People's actions at work, either by choice or by mandate, impact the other parts of their life. From the interviews with the participants, it became apparent that involvement and exposure has a connection to awareness and responsible actions.

Findings on the Perspectives of the Community Stakeholders Toward Social, Environmental, and Economic Issues Related to Their Local Environmental Decision-Making

The perspective of stakeholders toward economic, social, and environmental issues affects the way stakeholders make decisions both individually and jointly. Within this study it was identified that participants perceive tensions between economic, social, and environmental interests. These tensions, whether they are in the form of latent or manifest conflicts, have significant ramifications and do not exist in a vacuum. In addition to the general recognition of the economic, social, and environmental categorization of interests and the related tensions, the participants pointed toward the interaction between these three lenses. A major theme that emerged was the participants' recognition that social and environmental issues drive the area's economy.

Two overarching issues of tension, and the embedded conflicts, that were highlighted in the research were the challenges surrounding community growth and the issues related to a viable balance of water in the ecosystem. The local environment is a primary draw and generates the growth of the community, which is an economic benefit,

and this growth has led to congestion, which is a social frustration. The frustration could be alleviated with more roads, which comes at an economic cost and, more significantly, an environmental cost. There are many tensions between stakeholders' interests and viewpoints within this conundrum that will require a collaborative solution to achieve shared value.

The other notable issue relates to the balance of water including both maintaining the presence of freshwater throughout the year and managing the proper blend and opposing pressures between freshwater and saltwater. In addition to the severe alteration of the environment by the canal system that was implemented throughout south Florida over the past century, some developers and community members want to continue to drain their respective spaces. The explanations given for the continued drainage range from economic reasons such as the preparation of construction sites to social reasons such as mosquito control and the opinion that standing water is unsightly or otherwise undesirable. However, creating more efficient drainage reduces the natural filtration, increases freshwater pollution, and increases the likelihood of saltwater intrusion. By slowing the drainage process and maintain more reservoirs or water repositories upstream, all of these issues can be greatly reduced or even completed abated.

Findings on the Points of Shared Value of the Community Facing Environmental Management Issues

Throughout the research material an "us-versus-them" viewpoint was expressed that strongly indicated that the participants perceived tension between the various stakeholders and stakeholder groups. The reactions to these conflicts included requests

for greater intervention and government action, a general recognition of the need for some type of collaboration, and a resignation that everything comes back to money and power.

The participants may not have fully understood or expressed the idea of shared value either conceptually or pragmatically, however there was a universal commonality of the importance of conservation and water to virtually every belief system establishes a baseline for a common story. Additionally, given the fact that stakeholders seek unbiased information; this opens the space for shared information that can be built on top of the shared foundation.

Although the participants had mixed feelings of the "wildness" of the area, participants highly value natural features of the local environment and perceive water to be a primary draw for the community. Some participants, and other parties that the participants mentioned, appeared to want some merging of a suburban wilderness with both nature and modern convenience. In spite of the paradox, these concepts further point to what that shared story entails and begin to express the narrative.

Unexpected Findings

Many of the findings substantiated the existing literature, however there were a few findings that were unexpected. For example, there were limited perceived differences between the participants' attitudes and their behaviors. With prompting in the interview, some participants admitted to an existing difference, but often reframed these differences as tradeoffs – watering fruit trees was offset by not watering the lawn; long showers were offset by not washing the car; and watering extensive landscaping was

offset by the use of effluent water. One participant did share a non-water-based example of contrasting attitudes and behaviors that concerned neighbors who that took an anti-immigration stance, but readily hired undocumented workers for short-term financial reasons.

Another unexpected finding, which was expressed by many of the participants, was the desire for better regulations and improved enforcement. The common assumption that community stakeholders are always opposed to government intervention and that business owners and representatives would be against regulation was not consistent with the participants' comments. Statements that started out as complaints against the regulations typically ended with examples of poor enforcement and not decrying the existence of the rule itself. The resounding theme was a desire for well-crafted and appropriate regulations that were fairly enforced.

Discussion

The findings that arose from the themes discovered within the collected data do not stand-alone – they exist within the context of the body of literature that has developed over time over a span of fields including conflict studies, business, and environmental management. It is therefore essential to compare and contrast the current findings to the existing literature. Using the three overarching categories of themes that were utilized to present the findings, the section that follows connects the information from the introduction (Chapter 1) and literature review (Chapter 2) sections of this material to the findings presented previously in this chapter.

Literature Review Connections to Findings on the Participants' Attitudes and Behaviors Toward Water

In alignment between our research and the existing literature, the recognition of stakeholders (Freeman, 1984; Grimble & Wellard, 1997) and their attitudes and behaviors is a key starting point for any understanding, intervention, or further action (Reed, 2008). Especially when interacting with environmental tensions such as the issues surrounding water in the Rookery Bay watershed, Bryan et al. (2010) pointed to the importance of clarifying the local attitudes and beliefs. In addition to aggregate perspectives, both the findings from this study and the material presented by Kelly (2012), Rockloff and Lockie (2004), and Sime (2005), highlighted that it is crucial to gain an understanding of the disparate community attitudes so that recommendations would be grounded on the participants' lived experiences.

Consistent with the findings of this research, Lamm's (2013) large-scale public opinion survey in Florida found that the cleanliness, quality, and plentiful aspects of water are highly important. Mullen and Allison (1999) identified that water quality and water quantity concerns can propel action that, as suggested in the previous section, can be used as a starting point for change and value creation. Feurt's (2006a; 2006b) cultural model was consistent with the water-related attitudes expressed by the participants. Each of the six categories Feurt presented was represented, directly or indirectly, in this study.

- Water is the basis for life (P7, P12);
- Water and land in a natural state, linked as a watershed, function as a water purification and storage system (P4, P8, P9);

- Water is a resource for humans to use and manage (P1, P2, P3);
- Water is a commodity (P5);
- Water is landscape (P6); and
- Water is waste (developers who want to get rid of water).

In many cases the words of the participants were almost exact matches to Feurt's category titles. However, regardless of the categorizations it is clear that the participants in this study and others held a wide array of perspectives.

Consistent with the findings of Hoehn and Thapa (2009), these disparate attitudes and behaviors are part of a larger story. The findings also identified diversity differences including cultural lenses such as those described by Billgren and Holmen (2008) that can, at times, add challenges to the process of working through issues. However, similar to the observation in the research findings section, Deutsch (1973) and Kriesberg (2007) demonstrate that differences can result in negative or positive conflict that can use the stakeholder differences to be a constructive element that promotes better and richer results. These findings also correspond with Wondolleck and Yaffee's (2000) statements about the importance of inclusion.

Similarly, Kulkarni (2009) points to the challenges of unequal levels of information and a general misunderstanding of environmental information that must be overcome to achieve an overarching solution. The findings of this research also identified inconsistent levels of information and potential power imbalances among the stakeholders. Because face-to-face communication was highlighted as a primary method of information sharing, the unequal access to information will continue unless alternate

modes of communication are implemented to provide convenient information and a genuine effort is made to communicate with a larger scope of stakeholders.

In addition to the connection regarding knowledge sharing, the literature and the current research also established common themes when linking participation and engagement to awareness and positive behavior. Grafton's (2005) explanation of how engagement and volunteering prompts an increase in social capital and environmental management actions relates to the connection that emerged in this research between professional and volunteer commitments to personal behaviors.

Literature Review Connections to Findings on the Perspectives of the Community Stakeholders Toward Social, Environmental, and Economic Issues Related to Their Local Environmental Decision-Making

Economic, social, and environmental perspectives, presented by Elkington (1997) in relation to an organization's triple bottom line, apply to the tensions felt by stakeholders and stakeholder groups as well. This is consistent with the findings that emerged in our study concerning the participants' realization of the tension between the economic, social, and environmental issues. Thoreson and Stopka, (2012) and Soviana and Kuhl (2013) connected these three areas, and the surrounding disparate perspectives, to the baseline for a shared understanding.

The recognition of the economic, social, and environmental elements within the wetlands by the participants aligned with the literature from Smit and Coops (1991) as well as from Larson and Lach (2008). The finding that societal and environmental factors drive the local economy is consistent the material presented by Riggs (2004) and

Carter (2009). This theme is not a surprise based on the literature because the "inseparable goals" of the economy and the environment in Collier County, where Rookery Bay is located, extends back to at least 1967 (Clark, 1975, p. 10).

The apparent paradoxes identified by the participants in this study surrounding the growth of the community is consistent with the social and environmental tensions and trade-offs that were mentioned by Tzoulas et al. (2007), McShane et al. (2011), and Vanclay (2012). Often these trade-offs mentioned by the participants involved economic capital versus environmental capital, however other participants did address the economic benefit of the natural ecosystem, which aligns with the idea of the overlap between the economic, social, and environmental perspectives (Rodriguez et al., 2002).

The challenges of the regional drainage system described by the participants connected with the water-based history of the area offered by Lammers et al. (2013). The participants repeatedly mentioned the ongoing tensions surrounding drainage and water control and the need for continued water management. These ideas match with the input by Von Korff et al. (2010) linking the better design of community engagement to lower economic costs and an increase social capital. Similarly, this research highlighted the importance of unbiased, convenient communication and education to participants. This perspective aligns with comments from the existing literature that describes how education and public awareness toward water quality enhances the capabilities of the community, including building trust and social capital (Glavas, Senge, & Cooperrider, 2010; Jones & Clark, 2013; Robelia & Murphy, 2012).

Literature Review Connections to Findings on the Points of Shared Value of the Community Facing Environmental Management Issues

The "us-versus-them" categorization from the participants aligns with the description by Mathie and Green (1997) explaining how groups often assume pre-determined patterns. The participants' realization of the challenge of collaboration was consistent with Wyman et al. (2012). As identified by Rockloff and Lockie (2004), the complexity surrounding coastal area such as the Rookery Bay area, added levels of conflict to community engagement, which is consistent with the participants' perceptions. Even though the participants may not have fully articulated shared value, there was an understanding that behaviors connect to a baseline. Similarly, Schueler' (2000) links a watershed ethic that promotes stewardship to personal responsibility. One aspect of this responsibility is the necessity of engagement and learning. Both of these concepts were mentioned as important to the participants. The existing literature also recognized the importance of collective learning, mutual learning (Schwilch et al., 2012; van de Kerkhof & Wieczorek, 2005) or social learning (Berkes, 2009; Garmendia & Stagl, 2010). Additionally, shared learning was also linked to conflict management (Garmendia & Stagl, 2010) and changes in attitudes and behaviors (Craps, 2003).

In addition to a connection to others through mutual learning there is also the connection to the local environment. The concept of personal responsibility within the local community is further bolstered by one's sense of place and a understanding of the importance of the surrounding space. The concept of a sense-of-place presented by Thomashow (1996) and Clayton and Opotow (2003) corresponds with the statements in

this study about the participants' high valuation of the local environment. Both the perceived 'wildness' of the area and the draw of the water-based environment provided strong narrative elements that can be used to work off this idea as the shared community story is developed.

Literature Review Concepts Not Represented In Findings

One of the findings that were expected that was not overtly mentioned by the participants was the direct monetization of social or environmental capital. The attempt to quantify social and environmental interests was mentioned repeatedly throughout the literature using an array of potential solutions (Bardecki et al., 1989; Shrestha et al., 2007; Russell et al., 2011; Vandermeulen et al., 2011). Although the participants mentioned trade-offs which relates to barter and there was an understanding of mitigations policies such as the requirement on developers to establish preserves, there was no suggestion to establish a common metric. Although it is possible that this was an oversight on the part of the participants, it may have also been a 'common sense' understanding on the elusiveness or improbability of monetizing many aspects of society and nature.

Theoretical Framework Connections to Research Findings

In addition to the connections between the research findings and the related conceptual literature, there are also clear and distinct connections between the research findings and the four primary theories used to undergird the research study, Stakeholder Theory, Symbolic Interactionism Theory, Rational Choice Theory, and Systems Theory, as well as the principles presented for the Value Optimization Theory

The concept of the stakeholder embedded in both the Stakeholder Theory and the Value Optimization Theory reverberate throughout the study, as the emergent perceptions of the stakeholders are presented. The viewpoints of the stakeholders are particularly apparent in themes 1 through 5 where the stakeholders' attitudes and behaviors toward water are presented. In addition to Stakeholder theory, the ideas of stakeholder communication and stakeholder choice that are elements of Rational Choice Theory were specifically linked to themes 4 and 6 through 9 respectively.

Systems Theory envelops the concept that all interaction occurs within a system. This idea emerged throughout all of the findings and was especially linked to themes 6 through 9 as the tensions between economic, social, and environmental issues were considered. Beyond the connection within the present framework, another element of Systems Theory is the implication of the paradigm as it extends into the future, which aligns with the principle of sustainability that was related to all themes and directly addressed in themes 2, 5, and 14.

The concepts of shared meaning, that is an important element of Symbolic Interactionism, and shared understanding, that is embedded in Stakeholder Theory, are particularly reflected in themes 10 through 15, as the stakeholders' points of shared value of the community facing environmental management issues were addressed. In contrast, the ideas of boundaries and guidelines align with the principles of Stakeholder Theory and Systems Theory. Although the stakeholders' desire for improved enforcement and fair regulations was an unexpected finding, this preference for boundaries actually

aligned with the Value Optimization Theory's element that building a sense of community includes openness and boundaries.

Recommendations

In their own words, the participants have identified the importance of water, the natural environment, and the significant effect that it has on the community. When this commonality is extended across the stakeholders in the community, this implies interest and engagement in addressing the water-related concerns of the region. There are broad applications to organizational strategies and the field of Corporate Social Responsibility as business and governments pursue an increase in sustainable value and the reduction of stakeholder tensions. The limited understanding of shared value identified in the research creates an obstacle that can be turned into a stepping-stone. Because of this concern, it is recommended that the concept of shared value be an integral part of the education strategy and shared outreach strategy.

Tension embedded within wilderness/frontier can increase stress and conflict. This can be written into the common story and celebrated. Shared meanings lead to shared understanding that leads to shared story and then leads to shared value. This process extends beyond common ground and sustainability. This concept of shared story includes building a sense of community and opens the space for the community to thrive.

Similar to NOAA's K-12 Estuarine Education Program (Rainer, 2014), tools such as electronic dashboards and summary communications can be established and maintain to meet the desire for convenient information. Additionally, exposure and involvement relate to awareness and responsible actions. Without a holistic perspective it is easy to

become blinded to the spaces and needs outside of the myopic area of focus. There are significant economic impacts, both direct and indirect, that are based on drainage decisions. Human structures, ranging from weirs to parking lots, which affect the water-based environment, have a significant presence in the area. The tensions surrounding community growth and the related managed growth process are part of the common story and common value within the Rookery Bay area. Therefore, the requisite responsible actions include active risk management, awareness and avoidance of negative unintended consequences, and a design-focus that is based on resilience.

Contributions to the Conflict Analysis and Resolution Field

Many concepts presented in the existing literature, such as Feurt's cultural models approach, were further validated and bolstered with this research. Often the environmental conflict and public dispute literature focused on large scale or manifest conflicts, such as the Everglades or the Chesapeake Bay; through this research it was identified that these concepts also apply to small scale watersheds with long-term and seemingly intractable conflicts.

This case study adds to the organizational conflict and stakeholder management literature and, in contrast, the wealth of insights in the research was connected to a localized conflict. These tensions that largely represent latent conflicts are being strained by the continued development growth of the area. By acquiring localized knowledge of the community and tying it to conflict resolution and organizational theories, the knowledge of these systematic interactions is increased and tools can more effectively be developed for organizational decision-making and outreach initiatives. In addition to the

impact of the study's results for the local watershed council, water management agencies, and other local organizations, this research informs other studies that seek to understand sustainable, shared value from a community stakeholder perspective.

In addition to adding a layer of substantiation to the literature with one more case study that agrees with the previous results, this research also illustrates the benefit of weaving concepts from various fields together to strengthen the conflict studies field. The realm of Corporate Social Responsibility and the related concept of the 'triple-bottom-line' that is sometimes described as 'people-planet-profit' has become a valid approach within the business and organizational development fields over the past twenty years. This multiple-lens approach would strengthen the structural integrity of the design and intervention in both the academic and practice areas of peace and conflict studies.

Additionally, the idea of the stakeholder that is shared within the realms of business and environmental management has the potential to be extended to other areas of conflict resolution. The term 'conflict parties' is widely used throughout the field, however with differing definitions allowing for equivocation. Tying the concepts of stakeholders and conflict parties together can strengthen the framework for conflict management and resolution.

Because of the stakeholders' limited understanding of shared value, this research provides foundational material for conflict design initiatives and methodologies to build toward shared value in organizational, environmental, and community conflicts. The approach of moving from conflict tensions to positive community building applies to the areas of conflict resolution design, collaboration, facilitation, outreach, and stakeholder

management. From a pragmatic level, the findings and recommendations in this research have offered an outline for practitioners that provide a path from dispute to common value generation. Beginning with a shared space and creating shared meanings, a shared understanding, a shared story that lead to shared value that is stable over time, sustainable value is established for the community.

The outline of the nascent Value Optimization Theory offered in this presentation provides a framework that is both pragmatic and theoretical and can be use to guide the academic and the practitioner in their pursuit of sense-making and sense-sharing. For example, the idea of a sense of community involving a combination of sharing with boundaries is not a new idea, however the succinct framing of the concept provides an effective rubric for the practitioner to make sense of a dilemma as well as providing an conceptual visualization for the academic to share a core element of conflict resolution. Several other elements within the proposed framework are clearly derived from theories presented throughout this presentation and, when distilled into a coherent outline, have the potential to serve as an effective practical guideline.

The goals of the research were to understand points of shared value of the community facing environmental management issues; to understand the perspective of community stakeholders toward the social, environmental, and economic issues related to their local community; and to understand stakeholder attitudes and behaviors toward water conservation. Throughout the review of the existing literature, development of the themes, composition of findings, and comparison of the findings back to the literature,

each of these three goals was actively addressed and the research goals were successfully met in this presentation.

Limitations

Along with highlighting the many positives of this research, it is also important to identify the limitations of the research and consider the impact of the findings and implications related to these shortcomings. A primary limitation revolved around the narrow demographic span of the participants. There was limited to no participation from females, those less than 30, minorities, or representatives from a low socio-economic demographic (see Figure 17). Due to the research design decision to focus on water-related stakeholders and decision makers and a single point of representation from stakeholder groups, this single snapshot approach limited inclusion. In consideration of Wilson and Wiber's (2009) challenge regarding power imbalance among stakeholders, the research design, although solid, was not all-inclusive. The design of the research was effective in bringing the community perspective into a conversation that often does not extend beyond policy makers, however there were voices that were not represented in this vital conversation. Furthermore, because of the limited diversity in the participants, the layout of the research did not effectively address stakeholder salience that was discussed by Mitchell et al. (1997). From a policy perspective this is especially important in understanding to whom decision makers pay attention.

Figure 17. Trailer park along Henderson Creek, Source: Bruce Lilyea, 2014

Directions for Future Research

There are several ways to improve or extend this study in future research. Approaches to further consideration could include using industry, cross-generational, or demographic subsets; implementing a latitudinal study over time; and applying the same case study research to other communities or other environmental features other than water. Additionally an intergroup qualitative research study could be conducted to understand tensions within the stakeholder groups. Also other qualitative research methods could be implemented such as narrative research to build the story and arts-based qualitative research to better understand the participants' connections to a sense of place. In contrast, there would also be a benefit that would be derived from methodological diversity to this specific research by including quantitative research to

add a scale to tension between stakeholders as well as both the individual, stakeholder groups, and aggregate tensions between the economic, social, and environmental issues.

The Beginning of a New Story

Throughout this case study research the idea of the narrative has emerged ranging from the respect for the participants' voice to the idea of the shared story that leads to sustainable, shared value. In keeping with the principles of life and storytelling where endings often include beginnings, the opening scenarios are reconsidered with the question - what does this common story and shared value look like?

As he slows for the no-wake-zone the Hendry County farmer celebrates the manatee for their role as an aquatic lawnmower of the submerged vegetation that provides valuable filtration to improve the water quality but would otherwise clog the waterways. Since she has added a fish tank in her home featuring local native fish and added native plants to her yard, the businesswoman has learned to become more conscientious of where she washes her hybrid vehicle. Confident in her recycling efforts, the now-ten-year-old girl has become active in organizing her classmates to join in a community outreach event. Sharing a relaxing dinner of MSC-certified seafood from his local Publix, the construction worker reflects on his morning spent planting an oyster bed. Although these stories are still fictitious, they represent the narratives that are possible in the pursuit of sustainable, shared value.

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Appendix A: Interview Guide*

1. Would you please describe how you use water (freshwater or marine) in your daily life, both for personal and professional purposes?
2. Are there differences in the way you think about water in your personal and professional contexts?
3. How do you make decisions about how much freshwater to use at home? At work?
4. What would you say is most important to you about freshwater?
5. Do you think conserving freshwater is important or necessary? What affect would freshwater conservation have on the community?
6. How would you describe the local natural environment?
7. What would you say is most important to you about the local environment?
8. How do you feel about living in this area? What do you like about living in this area? How could this area be a better place to live?
9. What is your knowledge and relationship with the coastal waters, such as beaches, bays and waterways (in the region)? Tell me what you know about estuaries and why they are important?
10. What do you think are the biggest threats to the health of estuaries and coastal waters?
11. What experiences have you had with stormwater/rainwater management or flooding/flood control? (Home or business?)
12. Do you think community members have a responsibility to manage stormwater?
13. What recommendations would you have for water managers in this area, if any?
14. How would you like to be included in water management decisions, if at all?
15. What do you know about the Rookery Bay National Estuarine Research Reserve?
16. How do you get information about the condition of Rookery Bay?
17. How would you like to get information about Rookery Bay and water conditions?

Appendix A (continued)

Supplemental questions

1. What, if any, conflicts have you experienced related to water use or water management?
2. How did you handle those conflicts?
3. Do you think there is a tension between the economic, environmental, and social aspects of water use? Please explain.
4. Do you have any differences in your own attitudes about the economic, versus environmental, versus social aspects of water use? Could you share an example?
5. Do you notice any differences in your behaviors related to these different aspects of water use? Could you provide any examples?
6. How do you go about dealing with these tensions between economic, environmental, and social aspects of water use?

*Please note, this is a semi-structured interview guide, as the research design allows for flexibility in the interview process based on participant interest and responses.

Appendix B: Demographic Information

Gender:

Age Range: ___18-29; ___30-50; ___60 or older

Occupation:

How long have you lived in Southwest Florida?

Appendix C: Consent Form

Consent Form for Participation in the Research Study Entitled
"The Florida Freshwater Research Project: A Case Study of the Rookery Bay Region"

Funding Source: Florida Department of Environmental Protection

IRB protocol #:

Principal investigator	Co-Investigator	Co-Investigator
Robin Cooper, PhD	Jorge Rice, MPA	Bruce Lilyea, MBA
Nova Southeastern University	780 NE 69 Street	214 W. Belvedere St
3301 College Avenue	Apt 802	Lakeland, FL 33803
Fort Lauderdale, FL 33314	Miami, FL 33138	
954-262-3048	305-206-6296	863-513-7611

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

What is the study about?
The purpose of this case study research is threefold: 1) to understand attitudes and behaviors related to water usage among residents in the Rookery Bay National Estuarine Research Reserve watershed; 2) to explore community members' interest and experience in engaging in water-related decision-making in personal and professional contexts; and 3) to describe community members' experiences of receiving and responding to information about water-related issues.

Why are you asking me?
We are interesting in learning about the views and experiences of people who live or work in the RBNERR watershed related to water usage. There will be approximately 40 participants in the study, with a range of interests in water related to tourism, farming, fishing, and other activities.

What will I be doing if I agree to be in the study?

If you agree to be in the study, you will participate in an interview that will ask you about how you use water in your daily life, how you make decisions related to water use, and how you get information about the condition of the Rookery Bay. The interview will last about half an hour, and you will be free to stop it at any time. You will have no further involvement following the interview. If it turns out that you do not live or work in the RBNERR watershed, we will not include your information in the study.

Is there any audio or video recording?
This research project will include audio recording of the interview. If you participate in the interview in person, the recording will be made with a digital hand-held recorder. I you participate in the interview over the telephone, the recording will be done via FreeConferenceCall.com, a secure web-based recording service. This audio recording will be available to be heard by the researchers, the IRB, and the Rookery Bay National Estuarine Research Reserve. The recording will be transcribed by one of the individuals noted at the top of this form. The recording will be kept securely in a locked cabinet in the home of the Principle Investigator for 36 months and then will be deleted. Because your voice will be potentially identifiable by anyone who hears the recording, your confidentiality for things you say on the recording cannot be guaranteed although the researcher will try to limit access to the tape as described in this paragraph.

What are the dangers to me?
This study has minimal risks for participants. There is some risk of loss of privacy, but you do not have to reveal any information that is sensitive. Additionally, the interview will be conducted in a location that affords protection from eavesdropping. There is also some risk of loss of confidentiality. To address this, we will use a pseudonym to protect your identity. The consent forms and recordings of the interviews will be kept in a locked cabinet and destroyed 3 years after the end of the study. If you have any questions about the research or your research rights, please contact Robin Cooper at the phone number listed above. You may also contact the IRB at the numbers indicated above with questions as to your research rights.

Are there any benefits for taking part in this research study?
There are no direct benefits.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study.

How will you keep my information private?
All information obtained in this study is strictly confidential unless disclosure is required by law. Study information will be kept in a locked cabinet in the home of the Principle Investigator for 36 months and then destroyed. The IRB and regulatory agencies may review research records.

What if I do not want to participate or I want to leave the study?

You have the right to leave this study at any time or refuse to participate. If you do decide to leave or you decide not to participate, you will not experience any penalty or loss of services you have a right to receive. If you choose to withdraw, any information collected about you **before** the date you leave the study will be kept in the research records for 36 months from the conclusion of the study and may be used as a part of the research.

Other Considerations:
If significant new information relating to the study becomes available, which may relate to your willingness to continue to participate, this information will be provided to you by the investigators.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you have been told that you may ask the researchers any study related questions in the future or contact them in the event of a research-related injury
- you have been told that you may ask Institutional Review Board (IRB) personnel questions about your study rights
- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree to participate in the study entitled "XYZ" [FILL IN TITLE OF STUDY]

Participant's Signature: _____ Date: _____

Participant's Name: _____ Date: _____

Signature of Person Obtaining Consent: _____

Date: _____